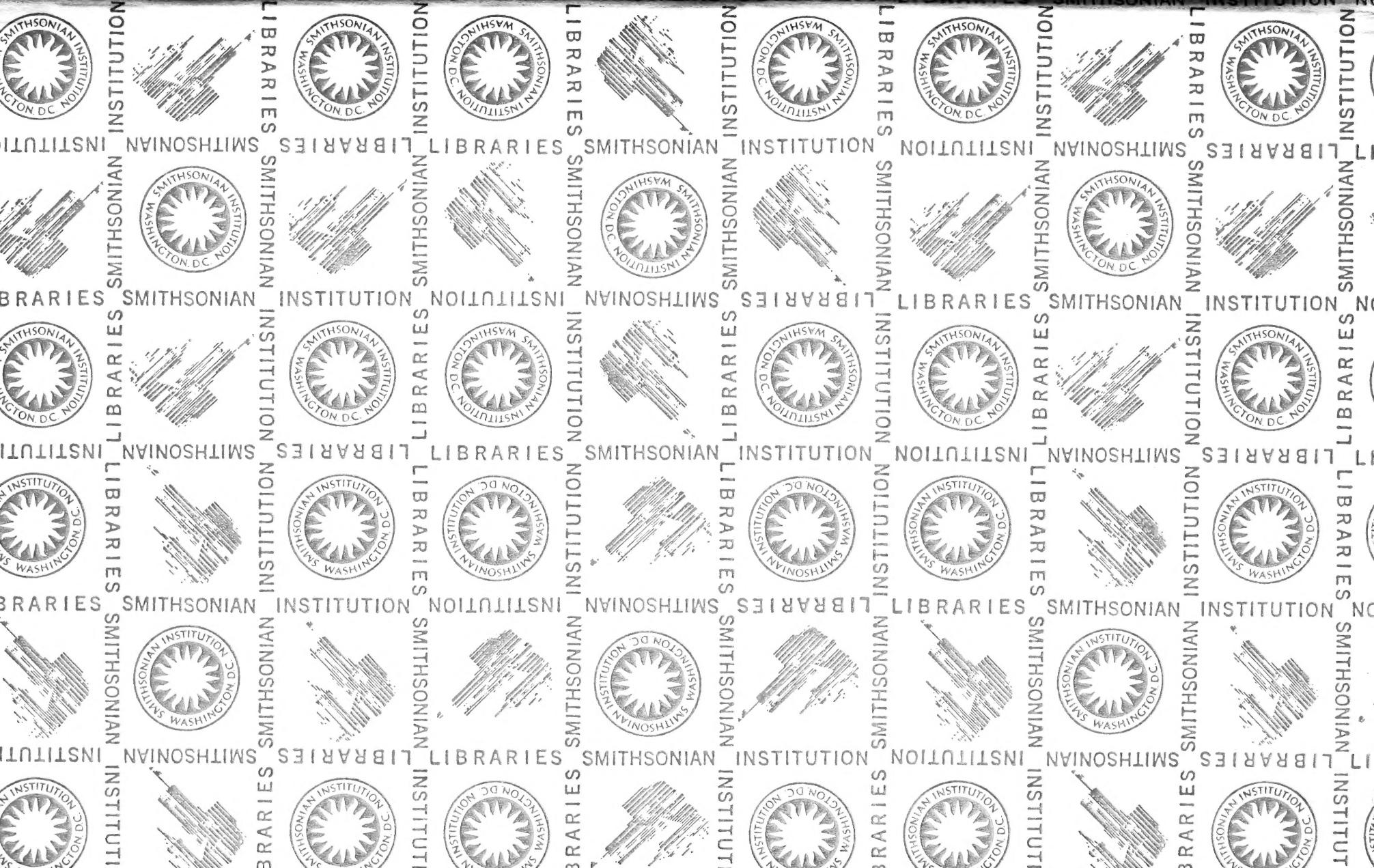
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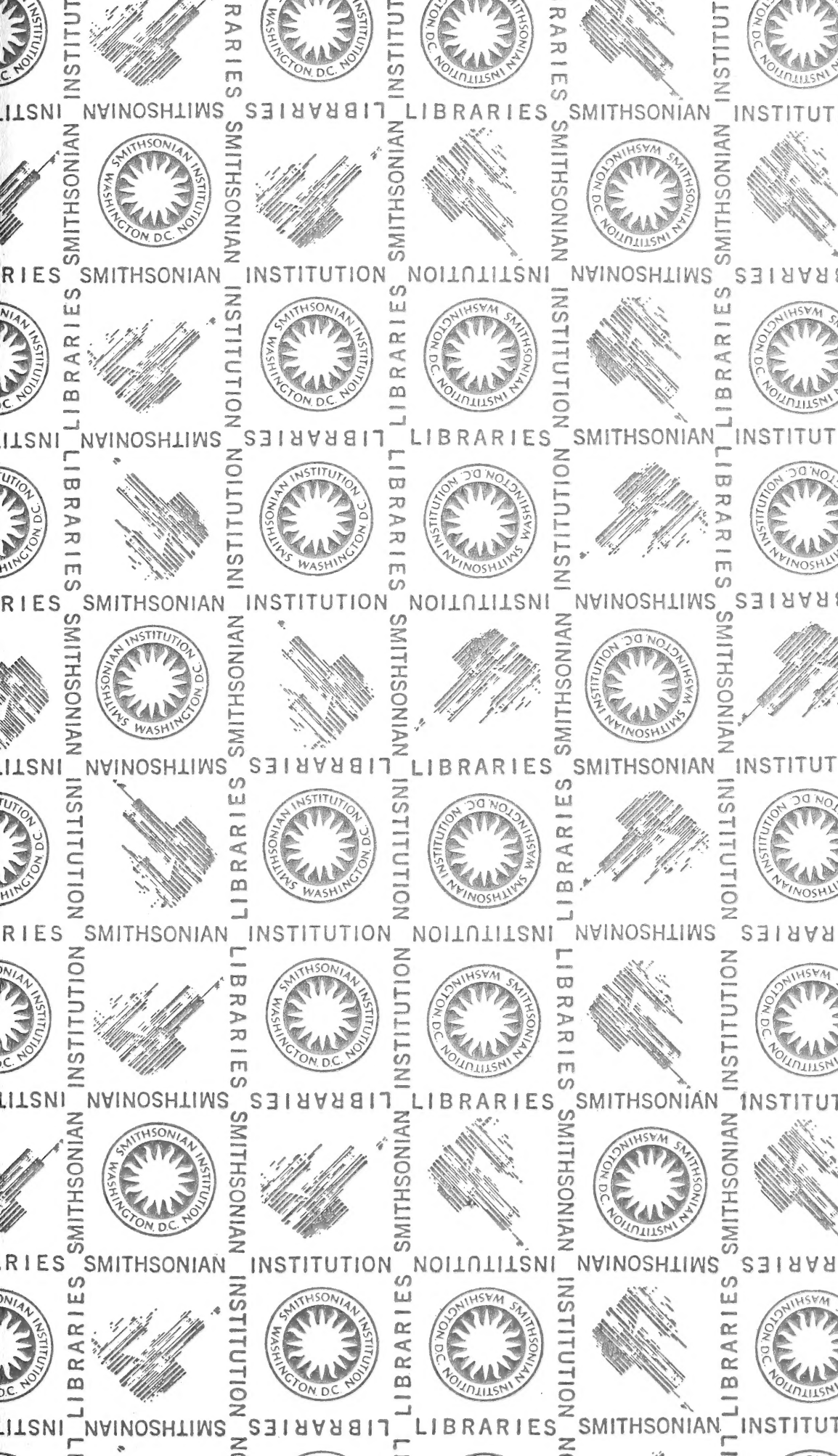
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BULLETIN 381 AUGUST 1906

New York State Museum

JOHN M. CLARKE Director

CHARLES H. PECK State Botanist

Bulletin 105

BOTANY 9

REPORT OF THE STATE BOTANIST 1905

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NEW YORK STATE EDUCATION DEPARTMENT
1906

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New York State Education Department
Science Division, January 2, 1906

Hon. Andrew S. Draper LL.D.
Commissioner of Education

SIR: I herewith transmit for publication as a bulletin of the State Museum the annual report of the State Botanist for the year ending September 30, 1905.

Very respectfully

JOHN M. CLARKE
Director

Approved for publication, January 5, 1906

A. S. Draper

Commissioner of Education

New York State Education Department

New York State Museum

JOHN M. CLARKE Director
CHARLES H. PECK State Botanist

Bulletin 105

BOTANY 9

REPORT OF THE STATE BOTANIST 1905

To John M. Clarke, Director of Science Division:

I have the honor of submitting to you the following report of work done in the botanical department of the State Museum during the year 1905.

Specimens of plants for the State herbarium have been collected in the counties of Albany, Allegany, Essex, Livingston, Rensselaer, Saratoga, Steuben, Suffolk, Warren and Wyoming. Specimens have been contributed that were collected in the counties of Albany, Chautauqua, Columbia, Fulton, Herkimer, Monroe, Oneida, Onondaga, Orleans, Oswego, Queens, Rensselaer, Suffolk, Tompkins, Warren, Washington, Wayne and Westchester. Specimens have also been contributed or sent for identification that were collected in the states of California, Connecticut, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Jersey, North Carolina, Pennsylvania and Virginia; also in the District of Columbia, and in the country of Mexico and the provinces of Alberta, British Columbia, New Brunswick and Ontario.

The number of New York species added to the herbarium is 277. Of these, 76 are new to the herbarium. A list of the names of these species may be found under the title "Plants added to the herbarium."

The number of contributions received, including specimens sent for identification, when their character and condition was such as to make their preservation desirable, is 63. A list of the names of the contributors and their respective contributions is given under the title "Contributors and their contributions."

One of the most notable of these contributions consists of a bell jar containing about 6 quarts of dried specimens of an edible

mushroom which is found in China and Japan growing on oak branches. A cabinet case about 4 feet long and 2 feet wide, containing four oak branches bearing specimens of the mushroom in place and showing their mode of growth, forms a part of the contribution. There are certain marks on the branches indicating that the mushroom is cultivated. These specimens had been on exhibition at the Louisiana Purchase Exposition at St Louis and at the close of the fair they were presented to the New York State herbarium by the Osaka Mushroom Merchants Association. The botanical name of the mushroom is Pleurotus bretschneideri, the common Japanese name is Shiitake.

The number of species added to the flora of the State is 82. Some of these have before been recorded as varieties of various species, but recently they have been raised to specific rank and they are herein reported as species. Of the 82 additions, 41 are considered new species and are described as such in this report. Of the new species, 19 belong to the genus Crataegus and are described in a chapter entitled "Species of Crataegus found within 20 miles of Albany." The remaining 22 are fungi. A chapter on species not before reported contains the names of the species new to our flora, descriptions of the new species not elsewhere described in this report and remarks concerning the others with the names of the places where and the times when the specimens were collected.

A record of new stations of rare plants and of persistence in old stations, descriptions of new varieties and remarks concerning peculiar and distinguishing features of closely related species may be found under the title "Remarks and observations." In this chapter 38 species are noticed.

The investigation of our species of Crataegus has been continued. In the study of our species in the vicinity of Albany I deem myself fortunate in having had the expert aid of Prof. C. S. Sargent, our highest authority on this, our largest and most difficult genus of trees and shrubs. He has visited with me some of the most prolific and interesting localities and personally examined the trees and shrubs in their place of growth and has kindly identified others from specimens sent him. He has named and described the new species reported in the chapter on species of Crataegus found within 20 miles of Albany and has prepared the bibliographic references of the others. Specimens collected in other parts of the State have not yet been fully identified. The number of species of this genus already identified and known to belong to our flora is 89.

The number of species of plants identified for correspondents and others who have sent or brought specimens to the office of the Botanist for this purpose is 601. The number of persons for whom identifications have been made is 86.

The work of testing our wild mushrooms for their edible qualities has been continued. The number of species tried and approved is 11. Descriptions of these have been written and constitute a chapter on edible fungi. They are illustrated on 10 plates by colored figures of natural size. Similar figures of four new species of fungi have been prepared on two plates. The number of species and varieties of New York edible mushrooms figured and described up to the present time is 172.

Mr Stewart H. Burnham was employed as temporary assistant during July, August and September. He continued the work begun by him last year and was chiefly engaged in disinfecting, arranging and labeling specimens. He also assisted in conducting the correspondence of the office and in the identification of specimens sent by correspondents.

Respectfully submitted

CHARLES H. PECK
State Botanist

Office of the State Botanist
Albany October 1, 1905

SPECIES ADDED TO THE HERBARIUM

New to the herbarium

Aecidium trientalis *Tranz.*
Anthostoma gastrina (*Fr.*) *Sacc.*
Boletus acidus *Pk.*
Clavaria conjuncta *Pk.*
Clitopilus squamulosus *Pk.*
Coccospora aurantiaca *Wallr.*
Cortinarius rubripes *Pk.*
Crataegus acuminata *Sarg.*
C. ambrosia *Sarg.*
C. asperifolia *Sarg.*
C. beckiana *Sarg.*
C. casta *Sarg.*
C. caesariata *Sarg.*
C. conspicua *Sarg.*
C. contortifolia *Sarg.*
C. demissa *Sarg.*
C. divergens *Sarg.*
C. eatoniana *Sarg.*
C. edsoni *Sarg.*
C. flagrans *Sarg.*
C. genialis *Sarg.*
C. halliana *Sarg.*
C. helderbergensis *S.*
C. howeana *Sarg.*
C. hystricina *Ashe*
C. illuminata *Sarg.*
C. mellita *Sarg.*
C. menandiana *Sarg.*
C. oblongifolia *Sarg.*
C. peckietta *Sarg.*
C. pentandra *Sarg.*
C. polita *Sarg.*
C. rhombifolia *Sarg.*
C. robbinsiana *Sarg.*
C. rubrocarnea *Sarg.*
C. sejuncta *Sarg.*
Entoloma flavifolium *Pk.*
Erinella raphidospora (*Ellis*)
Exoascus cecidomophilus *Atk.*
Geopyxis nebulosa (*Cke.*) *Sacc.*
Geranium sibiricum *L.*
Gloeosporium riessii *S. & S.*
Hydnum cyaneotinctum *Pk.*
Hypomyces camphorati *Pk.*
H. lateritius (*Fr.*) *Tul.*
Inocybe diminuta *Pk.*
I. radiata *Pk.*
Lachnella flammea (*A. & S.*) *Fr.*
Lactarius rimosellus *Pk.*
Lentinus spretus *Pk.*
Leptosphaeria substerilis *Pk.*
Marasmius longistriatus *Pk.*
Melanogaster durissimus *Cke.*
Melanthium latifolium *Desr.*
Merulius pruni *Pk.*
M. ulmi *Pk.*
Oligonema nitens (*Lib.*) *Rost.*
Panus fulvidus *Bres.*
Perichaena quadrata *Macb.*
Phyllosticta pallidior *Pk.*
Physoderma menyanthis *DeBy.*
Pluteus grandis *Pk.*
Polyporus underwoodii *Murr.*
Psathyra vestita *Pk.*
Russula subsordida *Pk.*
R. viridella *Pk.*
Sporotrichum anthophilum *Pk.*
Stropharia melasperma (*Bull.*)
Tilmadoche compacta *Wing.*
Tricholoma paeonium *Fr.*
T. unifactum *Pk.*
Uredinopsis atkinsoni *Magn.*
U. osmundae *Magn.*
Verbascum phlomoides *L.*
Veronica chamaedrys *L.*
Zygodesmus pallidofulvus *Pk.*

Not new to the herbarium

Acer pennsylvanicum *L.*
A. saccharum *L.*
Aecidium pentstemonis *Schw.*
Agaricus abruptibulbus *Pk.*
A. arvensis *Schaeff.*
A. campester *L.*
Amanita frostiana *Pk.*
A. phalloides *Fr.*
A. rubescens *Fr.*
A. russuloides *Pk.*
A. solitaria *Bull.*

Amanitopsis vaginata (*Bull.*) *Roze*
A. volvata (*Pk.*) *Sacc.*
Amelanchier oligocarpa (*Mx.*)
Aralia nudicaulis *L.*
Arctium lappa *L.*
Artemisia caudata *Mx.*
Asplenium eben. hortonae *Dav.*
A. eben. incisum *Howe*
Betula lenta *L.*
B. papyrifera *Marsh.*
B. populifolia *Marsh.*
Bidens bipinnata *L.*
Boletus aureipes *Pk.*
B. bicolor *Pk.*
B. castaneus *Bull.*
B. chromapes *Frost*
B. chrysenteron *Fr.*
B. felleus *Bull.*
B. frostii *Russ.*
B. rugosiceps *Pk.*
B. russellii *Frost*
B. subaureus *Pk.*
Bovista plumbea *Pers.*
Bulgaria rufa *Schw.*
B. rufa magna *Pk.*
Cassia chamaecrista *L.*
C. nictitans *L.*
Chimaphila umbellata (*L.*) *Nutt.*
Cicuta maculata *L.*
Clitocybe ochropurpurea *Berk.*
Clitopilus noveboracensis *Pk.*
C. prunulus (*Scop.*) *Fr.*
Collybia dryophila (*Bull.*) *Fr.*
Cornus amomum *Mill.*
C. candidissima *Marsh.*
C. circinata *L'Her.*
Cortinarius amarus *Pk.*
C. bolaris (*Pers.*) *Fr.*
C. corrugatus *Pk.*
C. heliotropicus *Pk.*
C. semisanguineus (*Fr.*)
C. torvus *Fr.*
Crataegus acclivis *Sarg.*
C. champlainensis *Sarg.*
C. coccinea *L.*
C. durobrivensis *Sarg.*
C. ferentaria *Sarg.*
C. gemmosa *Sarg.*
C. oxyacantha *L.*
C. succulenta *Lk.*
Drosera rotund. comosa *Fern.*
Elatine americana (*Pursh*) *Arn.*
Entomosporium maculatum *Lev.*
Epipactis viridiflora (*Hoffm.*)
Equisetum hyemale *L.*
E. variegatum *Schleich.*
Fomes conchatus (*Pers.*) *Fr.*
F. rimosus *Berk.*
Gentiana quinquefolia *L.*
Gyromitra esculenta (*Pers.*) *Fr.*
Gyrostachys gracilis (*Bigel.*)
Hibiscus moscheutos *L.*
Hicoria glabra (*Mill.*) *Britton*
Hordeum hexastichon *L.*
Hydnum albonigrum *Pk.*
H. aurantiacum *A. & S.*
H. caput-ursi *Fr.*
H. mucidum *Pers.*
H. rufescens *Pers.*
H. schiedermayeri *Heuf.*
H. scrobiculatum *Fr.*
H. septentrionalis *Fr.*
H. spongiosipes *Pk.*
H. vellereum *Pk.*
Hygrophorus peckii *Atk.*
Hypholoma perplexum *Pk.*
Hypocrea citrina (*Pers.*) *Fr.*
Hypomyces lactifluorum (*Schw.*)
Ilex vert. cyclophylla *Robins.*
Inocybe flocculosa *Berk.*
Iris pseudacorus *L.*
Irpex nodulosus *Pk.*
Juglans cinerea *L.*
Juncus brachycephalus (*Engelm.*)
Lactarius brevis *Pk.*
L. camphoratus (*Bull.*)
L. fuliginosus *Fr.*
L. indigo *Schw.*
L. parvulus *Pk.*
L. scrobiculatus (*Scop.*)
L. serifluus (*DC.*) *Fr.*
L. sordidus *Pk.*
L. subdulcis (*Bull.*) *Fr.*
L. trivialis *Fr.*
L. vellereus *Fr.*
Lathyrus maritimus (*L.*) *Bigel.*
L. ochroleucus *Hook.*
Lentinus cochleatus *Fr.*
Lenzites sepiaria *Fr.*
Lychnis chalcedonica *L.*
Lysimachia quadrifolia *L*
L. vulgaris *L.*

Marasmius oreades *Fr.*
M. salignus *Pk.*
M. scorodonius *Fr.*
M. siccus *Schw.*
M. subnudus (*Ellis*) *Pk.*
Monarda mollis *L.*
Monilia fructigena *Pers.*
Onosmodium carolinianum (*Lam.*)
Otidea onotica ochracea *Fr.*
Panus torulosus *Fr.*
Peramium repens (*L.*) *Salisb.*
Peltigera aphthosa (*L.*) *Hoffm.*
Phallus duplicatus *Bosc*
Pholiota comosa *Fr.*
P. squarrosoides *Pk.*
P. vermiflua *Pk.*
Phytolacca decandra *L.*
Phylloporus rhodoxanthus (*Schw.*)
Picea brevifolia *Pk.*
P. rubens *Sarg.*
Pleurotus cornucopioides *Pers.*
P. ostreatus (*Jacq.*) *Fr.*
Polyporus berkeleyi *Fr.*
P. frondosus *Fr.*
P. schweinitzii *Fr.*
P. sulphureus (*Bull.*) *Fr.*
Polystictus circinatus *Fr.*
P. simillimus *Pk.*
Prunus americana *Marsh.*
P. virginiana *L.*
Pterospora andromedea Nutt.
Pyrola secunda *L.*
Rhus glabra *L.*
Ribes prostratum *L'Her.*
Roestelia aurantiaca *Pk.*
Rhynchospora glomerata (*L.*) *Vahl*
Rubus neglectus *Pk.*
Russula albida *Pk.*
R. decolorans *Fr.*
R. emetica *Fr.*
R. flavida *Frost*
R. mariae *Pk.*
R. sordida *Pk.*
R. sororia *Fr.*
R. uncialis *Pk.*
R. variata *Banning*
R. virescens (*Schaeff.*)
Salix lucida *Muhl.*
S. serissima (*Bail.*) *Fern.*
Solenia villosa *Fr.*
Stereum sericeum *Schw.*
Strobilomyces strobilaceus (*Scop.*)
Stropharia semiglobata (*Batsch*)
Thelephora intybacea *Pers.*
T. laciniata *Pers.*
Tilia vulgaris *Hayne*
Trametes pini (*Brot.*) *Fr.*
T. trogii *Berk.*
Tricholoma portentosum *Fr.*
T. radicatum *Pk.*
T. subacutum *Pk.*
Triosteum aurantiacum *Bickn.*
Trillium grandiflorum (*Mx.*)
Verticillium enecans *Speg.*
Vicia caroliniana *Walt.*
Viola arenaria *DC.*
V. conspersa *Reichen.*
V. cucullata *Ait.*
V. fimbriatula *J. E. Smith*
V. palmata *L.*
V. rotundifolia *Mx.*
V. selkirkii *Pursh*

CONTRIBUTORS AND THEIR CONTRIBUTIONS

Miss H. C. Anderson, Lambertville N. J.

Coprinus comatus *Fr.*
Tricholoma personatum *Fr.*
Volvaria bombycina *Pers.*

Mrs E. B. Blackford, Boston Mass.

Hydnum blackfordae *Pk.*

Miss G. S. Burlingham, Binghamton

Epipactis viridiflora (*Hoffm.*) *Reichb.*

Mrs M. S. DeCoster, Little Falls

Asplenium ebeneum hortonae *Dav.*

Mrs P. H. Dudley, New York

Melanthium latifolium *Desr.*

Miss Alice Eastwood, San Francisco Cal.

Hirneola polytricha *Mont.* | Montagnites candollei *Fr.*

Mrs L. L. Goodrich, Syracuse

Hydnum caput-ursi *Fr.* | Trillium grandiflorum (*Mx.*) *Salisb.*

Mrs T. J. Leach, Syracuse

Iris pseudacorus *L.*

Miss J. A. Moses, Jamestown

Hordeum hexastichon *L.*

Mrs F. W. Patterson, Washington D. C.

Lentinus spretus *Pk.*

Mrs F. C. Sherman, Syracuse

Tricholoma paeonium *Fr.* | Boletus chrysenteron *Fr.*

Miss T. L. Smith, Worcester Mass.

Corticium lilacino-fuscum *B. & C.* | Hydnum cinnabarinum *Schw.*

Phlebia radiata *Fr.*

Miss M. L. Sutliff, Sacramento Cal.

Galera reticulata *Pk.* | Marasmius sutliffae *Pk.*

Hypholoma incertum *Pk.* | Rhizopogon luteolus *Fr.*

Miss A. E. Tilton, Seal Harbor Me.

Hydnum suaveolens *Scop.*

Miss Adeline VanHorne, Montreal Can.

Armillaria imperialis *Fr.*

Mrs Elizabeth Watrous, New York

Pterospora andromedea *Nutt.*

Mrs M. S. Whetstone, Minneapolis Minn.

Clitocybe candicans *Pers.* | Lentinus obconicus *Pk.*

F. H. Ames, Brooklyn

Clitocybe trullisata *Ellis*

J. C. Arthur, Lafayette Ind.

Coleosporium campanulae (*Pers.*) *Lev.* | Puccinia andropogonis *Schw.*

C. vernoniae *B. & C.* | P. schedonnardi *K. & G.*

Peridermium holwayi *Syd.* | Uredo panici *Arth.*

P. ornamentale *Arth.* | Uromyces hedysari paniculata *Schw.*

H. J. Banker, Greencastle Ind.

Hydnum versipelle *Fr.* | Polyporus underwoodii *Murr.*

Thelephora intybacea *Pers.* | P. berkeleyi *Fr.*

Craterellus clavatus (*Pers.*) *Fr.* | P. poripes *Fr.*

F. S. Boughton, Pittsford

Cortinarius rubripes *Pk.*
Hypomyces lateritius (*Fr.*) *Tul.*
Pholiota comosa *Fr.*

F. J. Braendle, Washington D. C.

Boletus albellus *Pk.*

S. H. Burnham, Sandy Hill

Aecidium trientalis *Tranz.*
Asplenium eben. incisum *Howe*
Hydnum mucidum *Pers.*
H. septentrionale *Fr.*
Merulius ulmi *Pk.*
Peltigera aphthosa (*L.*) *Hoffm.*
Polyporus cuticularis (*Bull.*) *Fr.*
Poria fuscocarnea *Pers.*
Puccinia helianthi *Schw.*
Secotium acuminatum *Mont.*
Stropharia melasperma (*Bull.*)
Tricholoma unifactum *Pk.*
Verticillium enecans *Speg.*

H. P. Burt, New Bedford Mass.

Cortinarius heliotropicus *Pk.*
Geoglossum farlowi *Cke.*

A. K. Cole, Albany

Lycoperdon giganteum *Batsch*

Simon Davis, Boston Mass.

Cortinarius violaceus (*L.*) *Fr.*
Hygrophorus laurae *Morg.*
H. marginatus *Pk.*
H. purus *Pk.*
Mycena epipterygia (*Scop.*) *Fr.*
Pholiota praecox minor (*Batt.*)
Psilocybe foenisecii (*Pers.*) *Fr.*
Stropharia albocyanea *Desm.*

Frank Dobbin, Shushan

Boletus chrysenteron *Fr.*

P. H. Dudley, New York

Pinus palustris *Mill.* (wood specimen)

W. W. Eggleston, New York

Amelanchier arguta *Nutt.*
Crataegus blanchardi *Sarg.*
C. dissona *Sarg.*
C. foetida *Ashe*
C. frizzelii *Sarg.*
Crataegus contigua *Sarg.*
C. paddockae *Sarg.*
C. praecoqua *Sarg.*
C. rhombifolia *Sarg.*
C. robbinsiana *Sarg.*

C. E. Fairman, Lyndonville

Coccospora aurantiaca *Wallr.*
Erinella raphidospora (*Ellis*)
Geopyxis nebulosa (*Cke.*) *Sacc.*
Lachnella flammea (*A. & S.*)
Oligonema nitens (*Lib.*) *Rost.*
Perichaena quadrata *Macb.*
Zygodesmus pallidofulvus *Pk.*

W. G. Farlow, Cambridge Mass.

Stropharia formosa *Farl.* ined.

E. P. Felt, Nassau

Polystictus perennis (*L.*) *Fr.*
Tricholoma portentosum *Fr.*

O. E. Fischer, Detroit Mich.

Amanita cothurnata *Atk.*
Annularia sphaerospora *Pk.*
Bulgaria rufa *Schw.*
Peziza odorata *Pk.*

B. D. Gilbert, Clayville

Webera acuminata *Schp.*

N. M. Glatfelter, St Louis Mo.

Inocybe desquamans *Pk.*
Lentinus microspermus *Pk.*
Lepiota nudipes *Pk.*
Russula nigrescentipes *Pk.*

W. R. Griffiths, Douglaston

Calochortus umbellatus *Wood*

Cephas Guillet, Toronto Can.

Galera later. albicolor *Pk.*
Psilocybe foenisecii (*Pers.*)

J. V. Haberer, Utica

Achroanthes unifolia (*Mx.*) *Raf.*
Alsine gram. lanceolata *Fenzl.*
Antennaria arnoglossa *Greene*
Betula populifolia *Marsh.*
Botrychium obliq. habereri *Gilb.*
Callitriche heterophylla *Pursh*
Carex albicans *Willd.*
C. castanea *Wahl.*
C. muhlenbergii *Schk.*
C. schweinitzii *Dew.*
Ceanothus americanus *L.*
Corallorhiza multiflora *Nutt.*
C. mult. flavida *Pk.*
Drosera intermedia *Hayne*
D. rot. comosa *Fern.*
Elatine americana (*Pursh*) *Arn.*
Equisetum hyem. affine *Eaton*
E. hyem. intermedium *Eaton*
E. littorale *Kuehl.*
E. varieg. nelsoni *Eaton*
Galium aparine *L.*
Hieracium venosum *L.*
Hypericum canadense *L.*
Ilex vert. cyclophylla *Robins.*
Juncus tenuis anthelatus *Wieg.*
Lathyrus maritimus *L.*
Lemna minor *L.*
L. trisulca *L.*
Limnorchis huronensis *Rydb.*
Lycopodium inundatum *L.*
Monarda mollis L.
Ranunculus repens *L.*
Rhynchospora fusca (*L.*) *R. & S.*
R. glomerata (*L.*) *Vahl*
Scirpus subterminalis *Torr.*
Sparganium angustifolium *Mx.*
Triosteum aurantiacum *Bickn.*
Vaccinium penn. angustifolium (*Ait.*)
Veronica chamaedrys *L.*
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J. W. Harshberger, Philadelphia Pa.

Specimens of 190 species of Pocono plateau plants

M. E. Hard, Chillicothe O.

Armillaria nardosmia *Ellis*
Cordyceps herculea *Schw.*
Cyclomyces greenei *Berk.*
Hydnum adustum *Schw.*
H. spongiosipes *Pk.*
Trametes rubescens *A. & S.*

A. A. Heller, Los Gatos Cal.

Erysiphe polygoni *DC.*
Marsonia pot. helleri *Pk.*
Melasmia arbuticola *Vize*
Monilia avenae *Pk.*
Puccinia baccharidis *D. & H.*
P. menth. americana *Burr.*
Sphaerotheca humuli (*DC.*) *Burr.*
Uromyces trifolii (*Hedw.*) *Lev.*

C. P. Hoag, Albany

Lycoperdon giganteum *Batsch*

E. W. D. Holway, Minneapolis Minn.

Puccinia gigantispora *Bubak*
P. ostenta *Holway*
P. porteri *Coulter*
Puccinia salviicola *D. & H.*
P. scandica *Johans.*
Ravenelia spinulosa *D. & H.*

Edgar A. Houghtaling, Albany

An obconic nut, probably of some species of palm.

C. H. Kaufman, Ann Arbor Mich.

Cortinarius anfractus *Fr.*
C. annulatus *Pk.*
C. armillatus *Fr.*
C. bolaris *Fr.*
C. castanellus *Pk.*
C. collinitus *Fr.*
C. croceocolor *Kauff.*
C. cylindripes *Kauff.*
Cortinarius obliquus *Pk.*
C. pholideus *Fr.*
C. semisanguineus (*Fr.*)
C. sterilis *Kauff.*
C. subbivelus *Kauff.*
C. torvus *Fr.*
C. umidicola *Kauff.*

E. A. Lehman, Winston-Salem N. C.

Hexalectis aphyllus (*Nutt.*) *Raf.*

R. B. Mackintosh, Peabody Mass.

Agaricus micromegethus *Pk.*
Secotium acuminatum *Mont.*

E. R. Memminger, Flat Rock N. C.

Craterellus odoratus *Schw.*

G. E. Morris, Waltham Mass.

Boletinus cavipes *Opat.*
B. paluster *Pk.*
Boletus illudens *Pk.*
B. nobilis *Pk.*
Eccilia atrides *Lasch.*
Flammula squalida *Pk.*
Hygrophorus marginatus *Pk.*
H. speciosus *Pk.*

R. S. Phifer, Danville Va.

Boletus ravenelii *B. & C.*

William Richards, Albany

Lycoperdon giganteum *Batsch*

I. M. Shepherd, Trenton N. J.

Agaricus campester exannulatus *Cke.*

Perley Spaulding, St Louis Mo.

Daedalea ambigua *Berk.*
Fomes ribis (*Schum.*) *Fr.*
Polyporus obtusus *Berk.*
P. scruposus *Fr.*

E. B. Sterling, Trenton N. J.

Cantharellus aurantiacus *Fr.*
Cordyceps sinensis (*Berk.*) *Sacc.*
Panaeolus papilionaceus *Fr.*
Pleurotus bretschneideri *Kalchb.*

R. H. Stevens, Detroit Mich.

Guepinia bicolor *Pk.*

F. C. Stewart, Geneva

Gloeosporium riessii *S. & S.*
Sporotrichum anthophilum *Pk.*

D. R. Sumstine, Kittanning Pa.

Cordyceps capitata (*Holmsk.*) *Lk.*

W. B. Varnum, Albany

Stropharia melasperma (*Bull.*) *Fr.*

E. A. White, Storrs Ct.

Amanitopsis volvata (*Pk.*) *Sacc.*
Collybia tuberosa (*Bull.*) *Fr.*

T. E. Wilcox, Washington D. C.

Cortinarius anomalus *Fr.*

B. C. Williams, Newark

Polyporus frondosus Fr.

Osaka Mushroom Merchants Association, St Louis Mo.

Pleurotus bretschneideri *Kalchb.*

SPECIES NOT BEFORE REPORTED

Actaea eburnea Rydb.

Meadowdale and Karner, Albany co. May, in flower. July, in fruit. Formerly considered a form of Actaea alba with slender pedicels.

Aecidium trientalis Tranz.

On living leaves of star flower, Trientalis americana. East Lake George marsh. June. S. H. Burnham.

Anthostoma gastrina (Fr.) Sacc.

Dead bark of hickory. Crown Point, Essex co.

Boletus acidus n. sp.

PLATE T, FIG. 1–6

Pileus fleshy, rather thin, firm, convex, very glutinous when moist, yellowish white, the margin of young plants often appendiculate with fragments of the whitish floccose and glutinous veil, flesh

whitish, taste acid and disagreeable; tubes short, adnate, concave in the mass in young plants, becoming plane with age, the mouths minute, subrotund, pale yellow, becoming darker with age; stem firm, equal or slightly tapering upward, subflexuous, solid, minutely dotted with brown or brownish glands, both above and below the slight, mostly glutinous and evanescent annulus; spores subferruginous, oblong elliptic, .0003–.0004 of an inch long, .00012.–.00016 broad.

Pileus 1-2 inches broad; stem 1.5–3 inches long, 2–3 lines thick. Under pine and hemlock trees. Port Henry. August.

This species belongs to the section Viscipelles. It is closely related to Boletus punctipes and B. americanus from which it is separated by its slight but mostly evanescent annulus and by its acid taste.

Clavaria conjuncta Pk.

Among fallen leaves in woods. Bolton Landing, Warren co. July. For a description of the species, turn to the chapter on edible fungi.

Clitopilus squamulosus n. sp.

PLATE S, FIG. 5–8

Pileus thin, nearly plane, deeply umbilicate, floccose squamulose, specially in the center, grayish brown and shining, flesh whitish; lamellae close, adnate or slightly decurrent, tinged with flesh color; stem long, slightly tapering upward, hollow, fibrous striate and colored like or a little paler than the pileus in the upper part, even and white toward the base; spores flesh color, subquadrate, angular, .0005 of an inch broad, with a large shining nucleus.

Pileus 1-1.5 inches broad; stem 3-4 inches long, 2-3 lines thick. Among fallen leaves in woods. Bolton Landing. July.

A species easily recognized by its squamulose deeply umbilicate pileus. The squamules in the center of the pileus are erect.

Coccospora aurantiaca Wallr.

Decayed wood. Lyndonville, Orleans co. C. E. Fairman.

Cortinarius rubripes n. sp.

Pileus thin, broadly convex becoming plane or nearly so, sometimes slightly depressed in the center, rarely slightly umbonate, minutely silky fibrillose, grayish ferruginous or pale alutaceous, flesh whitish; lamellae subdistant, emarginate, violaceous becoming cinnamon; stem enlarged or subbulbous at the base, hollow, bright red; spores elliptic, .0003–.0004 of an inch long, about .0002 broad.

Pileus 1-1.5 inches broad; stem 1-1.5 inches long, 2-4 lines thick. Woods. Pittsford, Monroe co. September. F. S. Boughton.

The color of the stem of this species indicates a relationship with such species as Cortinarius sanguineus and C. cinnabarinus. The discoverer of the species describes the colors of the cap and gills as very similar to those of Clitocybe ochropurpurea. The red stem and violet or purplish violet gills of the young plant make it a beautiful and very attractive species.

Crataegus acuminata Sarg.[1]

The acuminate thorn is closely related to C. streeterae and C. glaucophylla, but it may be separated from the first by the absence of wrinkles from the leaves, and from the second by the absence of glaucous hues from them.

Crataegus ambrosia Sarg.

The ambrosial thorn is so closely allied to the Hall thorn that they are not readily distinguished from each other when in flower, but with the full development of the leaves and fruit they are easily separated, the leaves being broader and the fruit of the ambrosial thorn being much larger and fewer in a cluster. It also persists later in the season. The bushes are red with fruit to the end of November.

Crataegus asperifolia Sarg.

The roughish-leaved thorn is similar in its general characters to the rubicund thorn, C. rubicunda, from which it may be separated by its glabrous calyx tube, which is also less reddish, more glandular calyx lobes and shorter pointed leaves. The petioles in our specimens are also generally shorter. The fruit of typical C. asperifolia is described as having yellow flesh, but in our specimens it becomes tinged with red late in the season.

Crataegus beckiana Sarg.

The Beck thorn in some of its characters is suggestive of C. rhombifolia, but it is a much larger treelike shrub with thicker leaves, glabrous calyx tube and with large drooping clusters of fruit.

Crataegus caesariata Sarg.

The hairy thorn belongs to the group Coccineae and when in flower it might be taken to be a form of C. coccinea. Its

[1] The descriptions of this and other new species of this genus will be found in the chapter on species of Crataegus found within 20 miles of Albany.

fruit, however, is quite different from the fruit of that species and is much later in ripening. Spines are almost entirely absent from the branches. In the North Albany clump only two small ones were found; in the Wynantskill clump none was found on the living branches and only three on one dead twig. In a third clump no spines are present.

Crataegus casta Sarg.

The chaste thorn belongs to the large group Pruinosae and to a possible section in which the flowers have 20 stamens with pink anthers. The fruit is beautifully colored and its pointed base affords an available character by which to distinguish the species from its near allies.

Crataegus conspicua Sarg.

The conspicuous thorn is a large shrub quite distinct from our other species of this group by its very hairy inflorescence and by the hairy lower surface of the leaves. The fruit persists till late in the season and sometimes a considerable part of it hangs on the branches through the winter.

Crataegus contortifolia Sarg.

The twisted-leaved thorn takes its name from one of the easily recognized and distinguishing characters of the species. This consists in a peculiar folding or wavelike curving of the margin of the leaf, as if there was a superabundant formation of marginal tissue for which there was no room in the ordinary plane of the leaf. This results in the curving of the margin. Such leaves do not press flat and smooth in the plant press. The species has affinities with C. champlainensis, C. submollis, C. tatnalliana and C. arnoldiana, but with none of them does it satisfactorily agree. It was erroneously referred to C. tatnalliana in New York State Museum Bulletin 94, page 28.

Crataegus demissa Sarg.

The low thorn grows from 4 to 6 feet tall and has small leaves, small flowers and small fruit. It is quite diminutive in all its parts and easily recognized.

Crataegus divergens Sarg.

The divergent thorn was formerly considered a variety of the unshaven thorn, C. irrasa, but it is now deemed worthy of specific distinction. It grows in patches rather than in clumps.

Crataegus eatoniana Sarg.

The Eaton thorn is yet limited to a single locality and a single small thicket in that locality. It is a peculiar species which by its leaves simulates species of the group Tomentosae, but its nutlets with plane inner faces forbid its reference to that group. It makes a second species for us in the group Punctatae.

Crataegus edsoni Sarg.

The Edson thorn has been found in a single locality in our territory. There are two clumps of it growing near each other a short distance north of Lansingburg. The species normally has 20 stamens in its flowers, but in our form of it the number ranges from 10 to 19. The prevailing number is 10 to 16. The fruit ripens about the first of September and soon falls.

Crataegus flagrans Sarg.

The flagrant thorn is a large shrub which is peculiar to a single locality. Its prominent characters are its thin leaves, hairy inflorescence with many flowered clusters and 10 stamens with white anthers.

Crataegus genialis Sarg.

The genial thorn is one of the common species in the vicinity of Albany. It is somewhat variable and not always readily recognizable. Its ascending branches and the ovate leaves being scarcely lobed except on vigorous shoots and the fruit commonly longer than broad are some of the most notable characters.

Crataegus halliana Sarg.

The Hall thorn has flowers with 20 stamens and white or pale yellow anthers. Its fruit is rather small but forms large many fruited drooping clusters which are conspicuous when ripe.

Crataegus helderbergensis Sarg.

The Helderberg thorn is a small tree with nearly horizontal widespreading branches suggestive of the appearance of the dotted fruited thorn, C. punctata. Its broad leaves and hairy inflorescence are distinguishing characters of the species. It has been found at Thompson Lake only, and belongs to the group Crus-galli.

Crataegus howeana Sarg.

The Howe thorn has the characteristic fruit of many species of the group Pruinosae. It is globose or depressed globose and more or less angular. It is rounded at the base and in this respect differs

from the fruit of C. c a s t a. Its flowers have 20 stamens with pale pink anthers, and its branches are furnished with numerous short branchlets and rather small slender spines.

Crataegus hystricina Ashe

The hedgehog thorn is probably so named because of its numerous spines. It has been found in our territory at Thompson Lake only.

Crataegus illuminata Sarg.

The illuminated thorn, in habit and general appearance of its foliage, is similar to C. d o d g e i. Its fruit is usually a little longer than broad and ripens earlier than the fruit of C. d o d g e i.

Crataegus mellita Sarg.

The honey thorn is very closely related to the Brainerd thorn, C. b r a i n e r d i, to which I formerly referred it, but from which it may be separated by its thinner leaves. Its fragrant honey-producing flowers are suggestive of the specific name. It is yet limited to a single locality. It inhabits rocky soil. It is remarkable in retaining the freshness of its reddish filaments almost to the time of ripening of its fruit.

Crataegus menandiana Sarg.

The Menand thorn is a large shrub belonging to the group Tomentosae. Its flowers have 20 stamens, but it differs from all our other species with 20 stamens in having red anthers. They are more highly colored than in our specimens of C. g e m m o s a and C. s u c c u l e n t a.

Crataegus oblongifolia Sarg.

The oblong leaved thorn belongs to the group Molles and is related to C. e x c l u s a. Its flowers have the anthers more highly colored than in the Albany form of C. e x c l u s a, and some of the leaves are much longer than broad, a character suggestive of the specific name. It is at present limited to the Menands locality so far as is known.

Crataegus peckietta Sarg.

The second Peck thorn is a northern species. It has been found at Piseco and Lake Pleasant in Hamilton county, at Keene and Port Henry in Essex county and at Horicon in Warren county. It sometimes retains a part of its fruit through the winter. The fruit is so peculiar in shape that often it is recognizable even after the shriveling and discoloration it undergoes during the winter.

It is broadly rounded or almost truncate at the base and slightly narrowed toward the apex. The plants bear fruit abundantly when only 4 or 6 feet tall, but they sometimes become 12 to 16 feet tall. They grow on rather light but rocky soil.

Crataegus pentandra Sarg.

The five stamened thorn, in its typical form, is said to have five stamens and to be a tree. Our forms are mostly shrubs and the stamens vary from 5 to 10 in flowers on the same shrub.

Crataegus polita Sarg.

The polished thorn has been found in only one locality in our territory. It there grows in poor rocky soil.

Crataegus rhombifolia Sarg.

The rhombic leaved thorn belongs to the thin leaved section of the group Tomentosae. It is, with us, a shrub of moderate size and has flowers with 10 stamens and pink anthers. The pedicels are hairy and the calyx tube is also more or less hairy. The species is rather common in the vicinity of Albany.

Crataegus robbinsiana Sarg.

The Robbins thorn sometimes forms a small tree but in the vicinity of Albany it is more often a shrub. The appearance of the leaves suggests a relationship to such species of the group Intricatae as C. intricata and C. foetida, but the fruit is pruinose and the species is referable to the group Pruinosae.

Crataegus rubrocarnea Sarg.

The red fleshed thorn takes its name from the deep red color of the flesh of the fully ripened fruit. It is closely related to C. rubicunda but may be distinguished from it by its more globose fruit in fewer fruited clusters and more persistent calyx lobes. It is at present limited to a single locality.

Crataegus sejuncta Sarg.

The separated thorn is allied to the polished thorn, C. polita, from which it is separated by its short, stout, hairy pedicels, more numerous stamens and rather larger crimson fruit. It is a large shrub.

Entoloma flavifolium n. sp.

PLATE S, FIG. 9–15

Pileus thin but firm, broadly convex or nearly plane, glabrous, hygrophanous, watery white and sometimes slightly striatulate on

the thin margin when moist, white when the moisture has disappeared, flesh-colored like the surface of the pileus, taste mild or slightly and tardily acrid; lamellae thin, close, rounded behind, adnexed, slightly eroded or uneven on the edge, pale yellow becoming pinkish; stem firm, equal, silky fibrillose, white mealy at the top, stuffed or hollow, whitish; spores bright pink, subglobose, slightly angular, .0003-.0004 of an inch broad, apiculate at one end.

Pileus 1-2 inches broad; stem 1.5-2 inches long, 2-4 lines thick. In dense woods among fallen leaves. Port Henry, Essex co. August. The species is well marked in the young plant by the clear pale yellow gills. Sometimes the margin of the pileus is wavy or irregular and the center tinged with brown when moist.

Erinella raphidospora (Ellis) Sacc.

Decaying wood. Lyndonville. C. E. Fairman.

Exoascus cecidomophilus Atk.

On fruit of chokecherry, Prunus virginiana. Bergen, Genesee co. July.

The diseased fruit is less elongated than when attacked by Exoascus confusus and is not curved. Moreover the calyx is not so conspicuously enlarged nor so persistent as when E. confusus is the parasite.

Geopyxis nebulosa (Cke.) Sacc.

Decaying wood. Lyndonville. July. C. E. Fairman.

Geranium sibiricum L.

The Siberian cranesbill is an introduced species but it was found growing plentifully and spontaneously at Wading River, Suffolk co. in August.

Gloeosporium riessii Schl. & Sacc.

On appletree bark. Geneva. October. Collected by D. B. Slight; communicated by F. C. Stewart.

Hydnum cyaneotinctum Pk.

The blue tinted hydnum has the peculiar structure of the pileus attributed by Professor Fries to the pileus of Polystictus circinatus. The upper stratum is of a soft spongy texture, the lower is hard and continuous with the stem. Both are usually slightly zonate. The stem is covered with a dense spongy tomentum. It is sometimes eccentric or even lateral, specially when the plant grows against a stump, stone or other obstruction which prevents

the free development of the pileus. When young, the pileus is whitish or white tinged with yellow. It soon assumes a buff color, with the margin commonly tinged with blue and becoming a darker blue where bruised. In old specimens the center or sometimes the whole becomes ferruginous brown. The aculei are at first white but they become brown or ferruginous brown with age. The spores are purplish brown, subglobose or oval, .00016 of an inch in diameter.

The plant has a farinaceous odor when cut or bruised. It is sometimes cespitose. It grows under hemlock trees. Horicon, Warren co. July.

Hypomyces camphorati n. sp.

Subiculum thin, effused, overrunning and obliterating the hymenium of the host plant, yellow; perithecia numerous, minute, immersed in the subiculum, the ostiolum exposed, brown; asci very long, .005-.006 of an inch (sporiferous part), eight spored; spores monostichous, oblong fusiform, continuous, acute or slightly cuspidate at each end, .0005-.0006 of an inch long, .00016-.0002 broad.

On the hymenium of Lactarius camphoratus. Port Jefferson, Suffolk co. August.

Closely allied to H. volemi Pk. from which it is distinguished by its yellow subiculum, its longer asci and acute or cuspidate spores.

Hypomyces lateritius (Fr.) Tul.

On the hymenium of Lactarius indigo. Pittsford, Monroe co. F. S. Boughton.

Inocybe diminuta n. sp.

Pileus thin, hemispheric becoming convex or nearly plane, squamose with hairy, erect or squarrose scales in the center, fibrillose on the margin, grayish brown; lamellae subdistant, broadly sinuate, adnexed, ventricose, at first whitish, then brownish or rusty brown; stem short, firm, solid, silky fibrillose, whitish in the upper part, grayish brown and subsquamulose toward the base; spores subglobose, nodulose, .0003-.0004 of an inch long, .0003 broad.

Pileus 3-6 lines broad; stem 4-8 lines long, about 1 line thick. Bare compact soil in wood roads. Wading River. August.

A small but distinct species belonging to the section Lacerae.

Inocybe radiata Pk.

Port Jefferson. August. Smaller than the type form but otherwise like it.

Juncus brachycephalus (Engelm.) Buch.

Formerly considered a variety of Juncus canadensis, but now raised to specific rank. Jamesville, Onondaga co. Sevey, St Lawrence co. C. H. Peck. West Danby, Tompkins co. W. R. Dudley. Waverly, Tioga co. F. E. Fenno.

Lachnella flammea (A. & S.) Fr.

On decorticated maple wood. Lyndonville. C. E. Fairman.

Lactarius rimosellus Pk.

Wading River, Suffolk co. August. Edible. The description of this species will be found in the chapter on edible fungi.

Lentinus spretus n. sp.

Pileus thin, tough, convex becoming nearly plane, obtuse or umbonate, rimose squamulose, grayish brown or pale alutaceous, often more highly colored in the center than on the margin, flesh white; lamellae rather narrow, close, decurrent, whitish, lacerate serrate on the edge; stem usually rather long, equal or sometimes narrowed or sometimes thickened toward the base, substriate, solid, more or less squamose, often eccentric, whitish, sometimes brownish toward the base; spores white, oblong, .0003-.0004 of an inch long, .00016 broad.

Pileus 2-5 inches broad; stem 1-3 inches long, 3-6 lines thick. Decaying wood of pine. Horicon, Warren co. July. Railroad ties. Albia, Rensselaer co. September.

This species has probably been confused with Lentinus lepideus, from which it may be separated by its more slender habit, thinner pileus, smaller scales, more narrow decurrent lamellae without a sinus, and specially by its smaller spores. In our specimens there is no evidence of a veil.

Leptosphaeria substerilis n. sp.

Foliicolous; spots small, .5-1 line broad, numerous, suborbicular, often confluent, generally sterile, brown or blackish brown, surrounded by an elevated line; perithecia few, 1-6 on a spot, unequal, covered by the epidermis, black; asci subcylindric or clavate, slightly narrowed toward the base; spores crowded in the ascus, colored, triseptate, subfusiform, .001-.0012 of an inch long, .0003 broad.

Living leaves of peppermint, Mentha piperita. Lakeport, Madison co. July.

The diseased tissue shrinks below the level of the surrounding healthy tissue and eventually separates from it and falls away, leaving circular holes in the leaves.

Marasmius longistriatus n. sp.

PLATE S, FIG. 1–4

Pileus membranaceous, convex becoming plane with a central depression or sometimes broadly infundibuliform, moist when young and striate almost to the center, bay-brown when moist, reddish gray when dry; lamellae thin, narrow, close, adnate, unequal, whitish; stem equal, externally cartilaginous, stuffed or hollow, covered with a grayish downy pubescence which is sometimes longer at the base.

Pileus 3-6 lines broad; stem 8-12 lines long, .5 of a line thick. Under pine and hemlock trees. Bolton Landing. July.

This resembles M. subnudus in color but it is a much smaller plant with long fine striae on the pileus and with much closer lamellae. The central depression resembles that of Coprinus plicatilis.

Melanogaster durissimus Cke.

Menands, Albany co. September 1904. A single specimen, somewhat smaller than the type form and without the strong odor attributed to that form, was found. Its hardness is remarkable and proves the appropriate character of the specific name. The type form was found in India, but specimens of the species have been reported from California by Dr H. W. Harkness. It is manifestly a species rarely found, but one having a wide range.

Merulius pruni n. sp.

Effused, thin, separable from the matrix, soft, with a definite whitish or pallid scarcely byssin margin; folds forming angular or irregular pores with dentate or sometimes irpiciform dissepiments, ecru drab when fresh, darker or subcervine when dry.

Bark of wild red cherry, Prunus pennsylvanica. Horicon. July.

It forms patches several inches long and broad, but these appear as if formed by the confluence of many small orbicular patches, the hymenium being faintly marked by concentric ridges or elevated lines. The texture is soft and somewhat waxy yet slightly tenacious and the margin is nearly glabrous. The specimens are sterile.

Merulius ulmi n. sp.

Effused, thin, firm, suborbicular or by confluence, forming patches, the margin often free and narrowly reflexed, pubescent, sometimes concentrically sulcate, white; hymenium white or whitish when young, soon pale cervine, the folds forming orbicular or oblong shallow pores often beautifully and concentrically arranged; spores not seen.

Dead branches of elm, Ulmus americana. Vaughns, Washington co. November. S. H. Burnham.

Monarda mollis L.

Canadice, Ontario co. C. H. Peck. Frankfort, Herkimer co. July. J. V. Haberer. Formerly referred to M. fistulosa as a variety, but now regarded as a distinct species.

Oligonema nitens (Lib.) Rost.

Decaying wood. Lyndonville. C. E. Fairman. A beautiful species easily recognized by the swollen rings on the threads of the capillitium and by the bright shining yellow color of the heaps of peridia.

Panus fulvidus Bres.

Fence rails. Keene, Essex co. June. This is a beautiful species with the central stem squamulose and the bright tawny pileus adorned with erect or squarrose blackish scales and strongly sulcate striate margin. The edge of the lamellae in our specimens is slightly eroded or denticulate, thereby suggesting an approach to the genus Lentinus.

Perichaena quadrata Macb.

Decaying bark and dead leaves. Lyndonville. C. E. Fairman. This species may be distinguished from P. depressa by its smaller peridia.

Phyllosticta pallidior n. sp.

Spots elliptic or orbicular, 2-4 lines long, 1.5-3 lines broad, whitish or grayish white surrounded by a red or reddish margin; perithecia minute, epiphyllous, occupying the center of the spot, black; spores globose or broadly elliptic, .0004-.0006 of an inch long, .0003-.0004 broad.

Living leaves of star-flowered Solomon's seal, Vagnera stellata. Bergen swamp. July.

This species is closely allied to P. cruenta, from which it differs in the very narrow red or reddish margin of the spots and

in the shape of the spores which are nearly globose and not at all curved as in P. cruenta.

Physoderma menyanthis DeBy.

Living leaves of buck bean, Menyanthes trifoliata. Bonaparte swamp, Lewis co. June. This species has been found as far north as Alaska.

Pluteus grandis n. sp.

Pileus fleshy, firm, convex with the thin margin sometimes curved upward, silky fibrillose, white or whitish, flesh white, taste farinaceous; lamellae thin, close, free, denticulate on the edge, whitish becoming flesh-colored; stem rather long, equal, firm, solid, silky fibrillose, white; spores subglobose, angular, uninucleate, .0003 of an inch broad.

Pileus about 4 inches broad; stem 4 inches long, 10 lines thick. Among fallen leaves in woods. Bolton Landing. July.

This is a fine large species, separable from Entoloma sinuatum by its free lamellae, and from white forms of Pluteus cervinus by the angular character of the spores and by its farinaceous taste.

Polyporus underwoodii n. sp. Murr.

Pileus varying from convex to deeply concave, 12-25 cm in diameter, averaging .5 cm in thickness; surface obscurely concentrically zonate, milk-white, pruinose, cremeous on drying, the center depressed and avellaneous; margin irregularly undulate lobed, either deflexed or recurved, very thin, not ciliate; context white, fleshy, tough, homogeneous, 2-5 mm thick; tubes milk-white, 2-3 mm long, five to six to a mm, cylindric, edges thin, entire to lacerate; spores ellipsoidal, hyaline, smooth, 3 x 6-7 μ; stipe short, central, solid, woody, equal or tapering downward, smooth, pruinose, white above, fuliginous below, 3 cm long, 2-3 cm thick.

The type of this species was collected by L. M. Underwood on buried decaying roots beneath birch trees at Cornwall Ct., August 1890. Specimens were also collected in Connecticut in 1902 by C. C. Hanmer. Fine specimens were again collected by H. C. Banker on the roots of a fallen, but living willow at Schaghticoke N. Y. in August, 1904. Plants were sent by Mr Banker to the State Museum at Albany and to the New York Botanical Garden. The nearest relative of this species in our flora is probably Polyporus fissus Berk. The specimen contributed to the State Museum has the stem wholly fuliginous.

Psathyra vestita n. sp.

Pileus thin, submembranaceous, ovate, conic or subcampanulate, obtuse, at first covered with white floccose fibrils, usually with a rufescent tint, soon paler or white and silky fibrillose, sometimes slightly striate on the margin; lamellae thin, narrow, close, adnate, white when young, becoming blackish brown; stem equal, hollow, flexuous, floccose fibrillose, becoming silky fibrillose, mealy and often striate at the top, white; spores purplish brown, elliptic, .0003-.0004 of an inch long, .0002-.00024 broad.

Pileus 4-8 lines broad; stem 1-1.5 inches long, 1-1.5 lines thick. Fallen leaves and grass. North Elba. September.

This species differs from P. semivestita in its color and in being wholly clothed when young with white floccose fibrils.

Russula subsordida Pk.

Horicon. July. Edible. A description of this species may be found in the chapter on edible fungi.

Russula viridella Pk.

Under hemlock trees in woods. Horicon. July. Edible.

A description of the species may be found in the chapter on edible fungi.

Sparganium fluctuans (Morong) Robins.

Deep water of lakes and ponds. Sand lake, Rensselaer co. and Big Moose lake, Herkimer co. July and August. This was formerly considered a variety of S. androcladum but it has now been raised to specific rank.

Sporotrichum anthophilum n. sp.

Hyphae creeping, interwoven, branched, continuous or sparingly septate, variable in thickness, .00008-.00024 of an inch in diameter, hyaline, forming a loose cottony stratum; spores globose or broadly ovate, .00016-.0003 of an inch long, borne on the tips of short branchlets which are usually narrowed toward the apex and pointed.

Parasitic on the filaments and petals of carnation pinks, discoloring them, destroying their vitality and spoiling the flowers. Bayside, Queens co. Collected by William Bell; contributed by F. C. Stewart.

Stropharia melasperma (Bull.) Fr.

Grassy ground. Observatory grounds. Albany. July. W. B. Varnum and S. H. Burnham.

Symphoricarpos pauciflorus (Robbins) Britton

This was reported as a variety of S. racemosus but it is now deemed worthy of specific rank.

Thelephora intybacea Pers.

Ground. East Schaghticoke, Rensselaer co. H. J. Banker.

Tilmadoche compacta Wing.

Much decayed wood of poplar. Loudonville, Albany co. August.

Tricholoma paeonium Fr.

Grassy places. Syracuse. August. "Growing after heavy rains," a habit which Professor Fries also ascribes to the European fungus. Mrs F. C. Sherman.

Tricholoma unifactum Pk.

Under hemlock trees. Horicon. July. Edible. For a description of the species see chapter on edible fungi.

Triosteum aurantiacum Bickn.

Along West Canada creek near East Herkimer and in bogs at Cedar lake. June and July. J. V. Haberer. A species separated from T. perfoliatum because of its orange-colored fruit and leaves not connate at the base.

Uredinopsis atkinsoni Magnus

Fronds of Dryopteris thelypteris. Ithaca flats. August. G. F. Atkinson.

Uredinopsis osmundae Magnus

Fronds of the cinnamon fern, Osmunda cinnamomea. Malloryville moor, Tompkins co. August. G. F. Atkinson.

Verbascum phlomoides L.

Near the railroad station. Wading River. August. The clasping leaved mullein is an introduced species. It resembles our common mullein but it has larger flowers, shorter and broader upper leaves of a greener hue and clasping at the base, but scarcely decurrent.

Veronica chamaedrys L.

Woods and steep banks along West Canada creek at Trenton falls, Oneida and Herkimer counties. June. J. V. Haberer.

Zygodesmus pallidofulvus n. sp.

Thinly effused, pale tawny; hyphae irregularly branched, the branches often short, suberect; spores globose, echinulate, .0004-.0005 of an inch in diameter.

Decaying wood. Lyndonville. August. C. E. Fairman.

REMARKS AND OBSERVATIONS

Agaricus arvensis purpurascens Cke.

Lawns. Fishers Island, Suffolk co. C. C. Hanmer.

Alsine graminea lanceolata Fenzl.

Rocky places. Little Falls. July. J. V. Haberer.

Amanita russuloides Pk.

Among fallen leaves in woods. Bolton Landing. July. This is larger than the typical form, having the pileus 4-6 inches broad, the stem 5-8 inches long and 5-12 lines thick. The annulus has a thick floccose edge which is sometimes grooved. The volva is definitely circumscissile, adnate to the bulb and furnished above with a short obtuse free margin. A smaller specimen, entirely white, was found at Wading River in August. The species is apparently a rare one. It was founded on specimens collected in Greenbush, and published in 1873, in *New York State Museum Report* 25, page 72. Since then it had not been observed by me, though extralimital specimens have occasionally been received from correspondents.

Asplenium ebeneum hortonae Dav.

Crevices of rocks. Little Falls. September. Mrs M. S. DeCoster. This is a rare variety. It has not yet been found fertile so far as I know.

Asplenium ebeneum incisum Howe

Hartford, Washington co. October. S. H. Burnham. This variety is included by Professor Eaton in *Ferns of North America* in his description of the species, and most botanists have followed him in this conception of the species. The difference between this form of the fern and the much more common form with narrower fronds and obscurely crenulate serrate pinnae is so strongly marked, that to one accustomed to notice the very fine distinctions now made by authors in describing plants, it seems more satisfactory

to separate them. It is therefore noticed here under the varietal name published in the 22d *Annual Report of the New York State Cabinet of Natural History*, 1869, p.104.

Bulgaria rufa magna n. var.

Cups large, 3-4 inches broad, sessile, nearly plane, sometimes irregular or wavy, the broad base distended in wet weather with a watery dingy whitish gelatin; hymenium ochraceous brown; spores white, .0008-.0012 of an inch long, .0005 broad. Externally colored and venose rugulose or subreticulated as in B. rufa. North Elba. This variety differs from the type in its habitat, which is among fallen leaves under balsam fir trees or on the ground among mosses. It does not appear to be attached to wood and is not at all narrowed into a stemlike base, but is broad and rounded underneath and the lower part is filled with a dingy watery gelatinous substance. The hymenium is ochery brown rather than rufous and the spores average a little longer than in our specimens of B. rufa. Notwithstanding these differences it has seemed to be so closely allied to B. rufa that I have thought it to be a variety of it rather than a distinct species.

Cortinarius amarus Pk.

This species was founded on specimens collected in the Adirondack region. Much larger specimens were found near Wading River the past summer. These are better developed and show clearly that the species belongs to the section Myxacium.

Cortinarius bolaris (Pers.) Fr.

With us this pretty cortinarius is beautifully spotted with red scales when fresh, but in drying, both pileus and stem assume a reddish color.

Cortinarius corrugatus Pk.

This proves to be a very variable species, yet the variations are so slight that they never disguise the true character of the species nor lead to any perplexity in its identification. Near Wading River a form occurs in which the stem when fresh appears to be almost or wholly without any bulb. In drying, the base of the stem shrinks less than the rest, so that in the dried state the stem is more distinctly bulbous.

Crataegus baxteri Sarg.

It has been found that the law of priority requires that this name must give way to Crataegus foetida Ashe, and that Crataegus dodgei Ashe must take the place of Crataegus gravesii Sarg.

Six species of Crataegus described from material found in or near Rochester have also been found in the vicinity of Albany. They are Crataegus acclivis, C. foetida (C. baxteri), C. durobrivensis, C. ferentaria, C. spissiflora and C. verecunda.

Crataegus oxyacantha L.

This introduced species is found growing wild near Albany. Some plants have white flowers, others pink. On some, the fruit is globose, on others, oval.

Drosera rotundifolia comosa Fern.

Beaver meadows and margins of lakes. Forestport, Oneida co. July. J. V. Haberer. This is a well marked and easily recognized variety. It is dwarfish in size, has its flowers in capitate clusters and the petals of a reddish or pink color.

Elatine americana (Pursh) Arn.

This rare little waterwort grows in shallow places on the sandy bottom of White lake, near Forestport. July. J. V. Haberer.

Epipactis viridiflora (Hoffm.) Reichb.

Near Mexico, Oswego co. Miss G. S. Burlingham. This is the fourth locality in our State in which this rare plant has been found. The others are Syracuse, Buffalo and Otisco.

Equisetum hyemale intermedium Eaton

Head of Oneida lake. June. J. V. Haberer.

Equisetum variegatum nelsoni Eaton

Stony flats along West Canada creek. July. J. V. Haberer.

Gyromitra esculenta (Pers.) Fr.

Among damp mosses under balsam fir trees. North Elba. June. This has long been considered an edible species, but sometimes sickness is caused if old specimens or such as are on the point of decay are eaten. It is better to use only young, sound and freshly collected specimens for food.

Hordeum hexastichon L.

A very unusual and interesting form of six rowed barley was collected near Jamestown by Miss J. A. Moses and specimens with notes were contributed by her to the herbarium. In these specimens the usual long awns are replaced by flower buds, the essential floral organs being visible only on dissection. These buds are

erect and in the best developed forms they are terminated by a reflexed flap or scale. On each side at the base is another smaller budlike projection which probably represents the lateral flower that ordinarily stands, one on each side of the central flower at each node. It looks like an effort on the part of the plant to increase the number of its seeds at the expense of its, to us, useless awns. The specimens were collected late in the season—in October—but whether this lateness of growth had anything to do with the peculiar development is uncertain. Other plants of normal form were found growing with these.

Hydnum schiedermayeri Heuf.

Dead trunk of a standing appletree. Keene, Essex co. September.

Ilex verticillata cyclophylla Robins.

Boggy margin of Otter lake, Oneida co. July. J. V. Haberer. Margin of Brant lake, Warren co. C. H. Peck.

Iris pseudacorus L.

This showy yellow flowered iris is an introduced species which is sometimes found growing spontaneously. Fine specimens were collected by Mrs T. J. Leach at the mouth of Salmon river, in Oswego county.

Lactarius brevis Pk.

The typical form of this species has a short stem. Specimens collected near Wading River the past season have stems from 2–2.5 inches long.

Lathyrus maritimus (L.) Bigel.

This seashore plant was reported by Dr Torrey many years ago as occurring at Oneida lake. Dr Haberer finds it still growing about the head of the lake.

Lychnis chalcedonica L.

The scarlet lychnis is often cultivated for its showy flowers and it sometimes escapes from cultivation to roadsides or waste places. But Dr Haberer has found it growing spontaneously on densely wooded slopes near White lake, Oneida co.

Lysimachia vulgaris L.

Along West Canada creek at East Herkimer. July. J. V. Haberer. This is a beautiful plant and is sometimes cultivated for ornament. The calyx lobes are red margined.

Marasmius salignus Pk.

This small mushroom usually grows on the bark of willows as its name implies, but specimens were found near Elm lake, Hamilton co. growing on the bark of alder, Alnus incana.

Marasmius siccus Schw.

A specimen of this species is preserved in the herbarium of Schweinitz in the rooms of the Philadelphia Academy of Science. By an inspection of this specimen it was found that Marasmius campanulatus Pk. is not specifically distinct, but this could not be satisfactorily ascertained from the description given of M. siccus. The species is very variable in the color of the pileus but quite constant in its other characters.

Otidea onotica ochracea Fr.

This peculiar cespitose variety was found in woods near Lake Placid in September.

Peltigera aphthosa (L.) Hoffm.

Clay soil. Tripoli, Washington co. October. S. H. Burnham. The upper surface of these specimens has a variegated appearance which is due to denuded places where the epidermis has apparently been eaten by some small creature thereby revealing the paler yellowish green inner tissues.

Polyporus simillimus Pk.

The name and distinguishing characters of this species were published in *New York State Museum Report* 32, page 34. Its nearest ally, P. parvulus Kl., is now referred to the genus Polystictus, to which genus this species also should be referred. The original specimens were found growing in the same locality as P. parvulus and were scarcely separable from it except by the much smaller pores and different spores. Since then it has been found in many places where no P. parvulus was seen.

Polyporus sulphureus (Bull.) Fr.

An apparent variety of this common species occasionally occurs in which the pores are white instead of sulfur-yellow. For the sake of convenience of reference I propose for it the name Polyporus sulphureus semialbinus Pk. Sometimes the hymenium of this variety is composed of closed cells as in the so called genus Myriadoporus.

Pterospora andromedea Nutt.

This rare saprophytic plant still lingers in a few northern localities. A specimen was collected near Hague, Warren co. by Mrs E. Watrous and contributed to the herbarium. Specimens were also found near Port Henry which were possibly growing in the same station in which the species was found more than 60 years ago.

Puccinia pyrolae Cke.

Horicon, Warren co. This is the second station in the State in which I have found this parasitic fungus. It is doubtless a rare species. No aecidial or uredo form of it was found in either station. The name was given on the supposition that the host plant is a species of Pyrola, but it is Polygala paucifolia.

Salix serissima (Bail.) Fern.

Lake Placid. June. Both staminate and pistillate plants were found growing side by side. In this instance the leaves become acuminate late in the season and more closely resemble the leaves of Salix lucida.

Trametes pini (Brot.) Fr.

The pine trametes was found near Albia, Rensselaer co. growing on pine ties of the electric railroad. The species is rare in our State and probably in this case the mycelium was introduced in the ties.

Trillium grandiflorum (Mx.) Salisb.

A singular monstrosity of the large flowered wake-robin was found near Syracuse and contributed by Mrs L. L. Goodrich. All the floral organs are petaloid or foliaceous, and instead of five whorls of three organs each, which is the usual number, there are 10 whorls of 3 in each. Beginning at the outside or exterior circle we find six green foliaceous organs, which may be taken to represent a double calyx. The next inner circle contains three white petaloid organs each with a green central stripe; then a circle of three green ones, one of which has its margins white. These two whorls may be taken to represent the petals. The third group consists of two circles containing three green organs in each, which represent the usual exterior row of stamens; then there are two circles of three white organs each, which correspond to the usual inner row of stamens. Finally the central group is composed of two circles of green foliaceous organs which may be taken to represent the three-parted pistil of the ordinary flower. This double flowered

trillium is a good illustration of the old and well known theory that floral organs are simply modifications of leaves, for in this single example we find all the floral organs replaced by oblong leaves, some of which retain the usual green color of leaves wholly, some partly and some exhibit wholly the white color so often shown by petals.

Uromyces caricis Pk.

In my examination of the specimens on which this species was founded only single celled spores were found. Later examination by others revealed a few Puccinia spores. This led to the transfer of the species to the genus Puccinia and it now bears the name Puccinia caricis-strictae Diet. A second station in which this somewhat rare species has been found is Round Lake, Saratoga county.

Uromyces peckianus Farl.

Leaves of marsh spike grass, Distichlis spicata (L.) Greene. Port Jefferson. August. This parasitic fungus was formerly referred to Uromyces graminum Cke., but it has been separated and now bears the name here given.

Xyris montana Ries

Abundant in peat bogs along the outlet of White lake, where it forms continuous patches. Xyris caroliniana also occurs in the same locality. July. J. V. Haberer.

EDIBLE FUNGI

Tricholoma unifactum n. sp.

UNITED TRICHOLOMA

PLATE 94, FIG. 1–5

Pileus fleshy but thin, convex, often irregular, sometimes eccentric from its crowded mode of growth, whitish, flesh whitish, taste mild; lamellae thin, narrow, close, rounded behind, slightly adnexed, sometimes forked near the base, white; stem equal or thicker at the base, solid, fibrous, white, united at the base in a large fleshy mass; spores white, subglobose, .00016-.0002 of an inch broad.

The united tricholoma belongs to the section Guttata and is closely related to the northern tricholoma, Tricholoma boreale and to the whitish tricholoma, Tricholoma albellum. From the former it is separated by its different color, mode of growth and lack of odor, and from the latter by its color, the absence of spots on the cap and by its smaller subglobose

spores. The stem and gills are white, the cap is nearly so. It has a watery white appearance when moist. The plants grow in clusters, several stems rising from a large whitish fleshy mass, by which character it is at once distinguished from all our other species of Tricholoma.

The taste is mild and there is no decided odor. The flesh is tender and of excellent flavor when properly cooked. The cap is 1-2 inches broad and the stem 1-2 inches long and 3-5 lines thick. It grows under hemlock trees and was found in Horicon, Warren co. in July.

Lactarius rimosellus n. sp.

RIMULOSE LACTARIUS

PLATE 95, FIG. 1–6

Pileus thin but firm, broadly convex, nearly plane or centrally depressed, dry, azonate, usually with a central papilla or minute umbo, minutely rimulose areolate, vinaceous cinnamon, flesh whitish, milk scanty, watery, taste mild; lamellae thin, narrow, close, decurrent, pallid or yellowish when young, colored nearly like the pileus when mature; stem slender, firm, equal or nearly so, glabrous, hollow, colored like the pileus; spores white, faintly tinged with yellow, subglobose, .0003-.00035 of an inch broad.

The rimulose lactarius is very closely related to the camphory lactarius, Lactarius camphoratus, resembling it in color, size and odor, but differing from it in the rimulose areolate cuticle and specially in its scanty watery milk. It is a small species having a cap that is 10-18 lines broad and a stem about 1 inch long and 2 lines thick. It grows on bare soil in woods or on banks of earth by roadsides. Wading River. August.

Lactarius serifluus (DC.) Fr.

THIN JUICED LACTARIUS

PLATE 95, FIG. 7–11

Pileus fleshy, firm, broadly convex becoming nearly plane or centrally depressed, dry, glabrous, azonate, vinaceous cinnamon, flesh whitish, milk watery, taste mild; lamellae thin, narrow, close, adnate or slightly decurrent, whitish when young, darker when mature; stem mostly short, equal or slightly tapering upward, solid, glabrous, colored like or a little paler than the pileus; spores globose or nearly so, white faintly tinged with yellow, .0003-.0004 of an inch broad.

The thin juiced lactarius has been found by me on Long Island only. It grows among fallen leaves in woods and shaded places and occurs in July and August. Its cap is firm in texture, broadly

convex or nearly plane, usually becoming centrally depressed with age. It is dry, evenly colored of a peculiar brownish fawn or pale vinaceous cinnamon. The European plant is described as having a brownish tawny cap and no odor is attributed to it. In our plant there is a slight pleasant aromatic odor, but in all essential characters the agreement with the description of the European plant is so close that we consider them both to be specifically the same.

The cap is 1.5-3 inches broad, the stem 1-1.5 inches long and 4-6 lines thick.

Russula albida Pk.

WHITISH RUSSULA

PLATE 96, FIG. 1–7

Pileus fleshy, thin, fragile, hemispheric or very convex when young, becoming nearly plane or slightly depressed in the center, slightly viscid when moist, white, often tinged with yellow in the center, even or slightly striate on the margin, flesh white, taste mild or slightly and tardily bitterish and unpleasant; lamellae moderately thin, close, entire, occasionally forked at the base, adnate or subdecurrent, white or whitish, the interspaces often venose; stem equal or slightly tapering upward, glabrous, stuffed or hollow, white; spores white with a faint yellowish tinge, subglobose, .0003-.00035 of an inch long, nearly or quite as broad.

The whitish russula is readily recognized by its color which is wholly white or sometimes varied only by a slight yellowish tinge in the center of the cap, and in the mature or old gills. The thin margin of the cap is sometimes curved upward in old plants and the interspaces between the gills are usually venose. The pellicle of the cap is separable, indicating with the equal gills and fragile texture that the species belongs to the section Fragiles. The slowly developed bitterish or unpleasant flavor of the fresh plant disappears in cooking.

The cap is 1-2 inches broad, the stem 1-3 inches long and 3-5 lines thick. The plants grow among fallen leaves in woods. Specimens have been collected in Rensselaer and Suffolk counties.

Russula flavida Frost

YELLOWISH RUSSULA

PLATE 97, FIG. 1–6

Pileus fleshy, firm, convex or broadly convex becoming nearly plane or centrally depressed, dry, at first even, often becoming slightly striate on the margin when old, chrome-yellow, sometimes

cadmium-yellow or orange in the center, flesh white, taste mild; lamellae rather thick, moderately close, entire or nearly so, adnate, white; stem equal or slightly tapering upward, solid, sometimes becoming spongy within and occasionally cavernous, colored like or a little paler than the pileus; spores yellowish, subglobose, .0003 of an inch long, nearly or quite as broad.

The yellowish russula is a very beautiful and an attractive species and it is very gratifying to find it edible. It is easily recognized by its color, for, though other species have the cap yellow, not many have both the cap and stem yellow, and none of these has them of the same shade of yellow as this. The cap is dry and the epidermis frequently breaks into minute mealy or granular yellow particles, indicating that the species belongs to the section Rigidae. The color often fades with age and sometimes the margin becomes white. The gills in the fresh plant are white but with age or in drying they often become dingy or assume a clay color. The interspaces are uneven with transverse veins. The stem is often a little paler than the cap, but it is usually more highly colored at the base than elsewhere. The mycelium appears to be of an orange color.

The caps are 2-3 inches broad, the stem 1.5-3 inches long and 4-8 lines thick. This mushroom grows in grassy places, among bushes or in woods and may be found in July and August. It is not common.

Russula sordida Pk.

SORDID RUSSULA

PLATE 98, FIG. 1–5

Pileus fleshy, firm, convex becoming centrally depressed, dry, even on the margin, sordid white becoming smoky brown with age, flesh grayish white becoming blackish brown where cut or broken, taste mild or sometimes tardily acrid; lamellae about equal in width to the thickness of the flesh, close, adnate or slightly decurrent, unequal, sometimes forked, white; stem short, firm, equal, solid, white, changing color like the pileus; spores white, globose, .0003 of an inch broad.

The sordid russula is a large unattractive species, but when fresh specimens free from larvae are fried in butter they make an excellent and relishable dish. It belongs to the section Compactae of which we have no species with a truly red cap, though the cap of Russula compacta Frost makes an approach to it. The cap of this species in young plants is nearly white, but

it is soon stained with smoky brown patches, and with advancing age the whole surface assumes this color. In old age or in drying the whole plant becomes black. The flesh is compact but brittle, grayish white quickly changing to blackish brown when cut or broken and exposed to the air. The white gills and stem also undergo the same change in color as the cap when subjected to the same conditions. In comparatively young specimens it often happens that when the stem is split longitudinally the center will be found full of the perforations of insect larvae and the injured tissues all blackened. This mushroom closely resembles two other nearly related species, Russula nigricans and R. densifolia. From the first it may be separated by its dry cap, its closer gills and by its wounded places assuming a blackish color without any intervening reddish hue. From the second also this last character will distinguish it, for in both these species wounded places first change to a reddish color and afterward to a black or blackish color.

The cap is 3-6 inches broad, the stem 1-2 inches long and 6-12 lines thick. This mushroom grows under hemlock trees and appears during July if the weather is sufficiently rainy.

Russula subsordida n. sp.

SUBSORDID RUSSULA

PLATE 99, FIG. 1–5

Pileus fleshy, firm, convex becoming nearly plane or centrally depressed, glabrous, viscid when moist or young, even on the margin, whitish becoming smoky brown with age, sometimes with an olive-green tint, flesh grayish white, slowly changing to a darker or smoky brown color when cut or broken, taste mild or tardily and slightly acrid; lamellae thin, close, adnate, with many short ones intermingled, whitish; stem short, firm, glabrous, spongy within or sometimes cavernous, white slowly becoming smoky brown where wounded; spores white, globose, .0003 of an inch broad.

The subsordid russula is very similar to the sordid russula and grows in similar places. It is sometimes associated with it, growing in the same locality and at the same time. Hitherto it has been found in Horicon only, but occurred there in several stations. It may be distinguished from the sordid russula by its viscid cap which is also less white when young, by its less white gills and by its wounds more slowly assuming the smoky brown hue. Both

are equally good to eat and equally unattractive in appearance. Both are apparently equally acceptable to insect larvae and both become black or nearly so in drying.

Russula viridella n. sp.

PALE GREEN RUSSULA

PLATE 100, FIG. 1–7

Pileus firm, subglobose, hemispheric or very convex, becoming nearly plane or centrally depressed, sometimes nearly funnelform, even on the margin, dry, soon minutely squamulose or furfuraceous, specially toward the margin, pale grayish green, generally smooth and paler or subochraceous in the center, flesh white, taste acrid; lamellae thin, narrow, close, some of them forked, occasionally anastomosing at the base, a few short ones intermingled, white; stem equal or nearly so, even, solid or spongy within, white; spores white tinged with yellow, globose or subglobose, .00024-.0003 of an inch long, nearly as broad; cystidia subfusiform, .0025-.003 of an inch long, .0006 broad.

The pale green russula is related to the greenish russula, Russula virescens, and has nearly the same colors, but it may be separated from the greenish russula by the minute squamules or fragments of the epidermis of the cap, the thinner and closer gills and by its acrid taste. When the cap is viewed in a certain light it has a pruinose appearance. The white gills are closely placed side by side and are sometimes connected with each other by transverse branches near the base. The stem is nearly cylindric, solid and white. It is very susceptible to the attacks of insect larvae and is often found perforated by them even in young plants. The acrid flavor of the fresh mushroom is destroyed by cooking.

The cap is 2.5-4 inches broad, the stem 2-3 inches long, and 5-8 lines thick. This species grows under hemlock trees and appears in July. It is gregarious and Horicon is at present the only locality where it has been found. It belongs to the section Rigidae. It is a fine addition to our mycological flora and to our list of edible mushrooms.

Russula variata Banning

VARIABLE RUSSULA

PLATE 101, FIG. 1–5

Pileus firm, convex becoming centrally depressed or somewhat funnelform, viscid, even on the thin margin, reddish purple or brownish purple often variegated with green, pea-green sometimes

varied with purple, flesh white, taste acrid or tardily acrid; lamellae thin, narrow, close, often forked, tapering toward each end, adnate or slightly decurrent, white; stem equal or nearly so, solid, sometimes cavernous, white; spores white, subglobose, .0003-.0004 of an inch long, .0003 broad.

The variable russula is appropriately named for its caps are very variable in color. They are dark purple or reddish purple variously intermingled or variegated with green, or wholly pale green. The viscid pellicle is closely attached to the cap in the center but it is separable on the margin. In drying it sometimes forms obscure spots. Notwithstanding the variations in the color of the caps, the species is easily recognized for the gills are very constant in their characters. Their narrowness, closeness and numerous bifurcations are peculiar and very constant features. They are sometimes slightly decurrent, specially in mature specimens whose upcurved margin gives the cap a more or less funnel shape. The stem is white and solid or sometimes with central cavities arranged one above another.

The cap is 2-4 inches broad, the stem 1.5-3 inches long, 5-8 lines thick. This mushroom grows in woods and appears during July and August. It belongs to the section Furcatae, as shown by the even margin of the cap and the gills tapering toward each end. The acrid taste of the fresh cap is destroyed in cooking and the flavor is then very good.

Clavaria conjuncta n. sp.

CONJOINED CLAVARIA

PLATE 102, FIG. 1–3

Stems united at the base, forming tufts 3-5 inches tall and nearly as broad, fragile, solid, glabrous, white or whitish, divided above into numerous erect, crowded, solid branches which are whitish or pale buff, ultimate branchlets terminating in two or more blunt points which are pale pink, sometimes with a yellowish tinge, flesh white, taste mild; spores dingy yellow in a thin stratum, subochraceous in a thick one, oblong, .0004-.0005 of an inch long, .00016-.0002 broad.

The conjoined clavaria is a large tufted and attractive species closely related to Clavaria flava on one hand and to C. botrytoides on the other. From the first it may be distinguished by the pinkish tips of the branchlets, from the second by their paler color and greater permanence and from both by the

larger spores. It is similar to both in its fragile tender flesh and pleasant flavor. It grows among fallen leaves in woods. It was found at Bolton Landing, Warren co. which yet remains its only known locality.

Hypomyces lactifluorum (Schw.) Tul.

RED HYPOMYCES

PLATE 103, FIG. 1–7

Subiculum thin, at first whitish, soon orange or cinnabar-red, effused over the surface of the host plant, transforming, hardening and deforming it and changing its color so that it is rarely recognizable; perithecia minute, abundant, sunk in the subiculum and appearing like minute red dots on the surface, becoming brown or blackish with age or in drying; asci slender, linear; spores white in the mass, monostichous, oblong fusiform, pointed or cuspidate at each end, uniseptate, .0015-.0018 of an inch long, .0003 broad.

The red hypomyces is a puzzling fungus to the young mycologist. It is one very frequently received at the office with inquiries concerning its name and nature. Its bright color makes it an attractive object, but its very irregular and inconstant shape makes it difficult to locate in any known genus of mushrooms. It really is a parasitic fungus and it and its host plant are so intimately united that they are taken by the inexperienced to be one thing. The parasite attacks and lives upon some of the fleshy mushrooms, changing their form, color and texture so much as to obliterate or disguise their characters and render them almost unrecognizable. The original specimens described by L. D. Schweinitz are said by him to be parasitic on species of Lactarius, specially L. piperatus. It is now known that the parasite sometimes attacks also the chantarelle, Cantharellus cibarius Fr. as shown by specimens but partly developed and slightly changed.

The parasite hardens the flesh of the host plant and makes it more dry, firm and crisp, but it is not tough. It is generally free from insect larvae, inviting in appearance and, though not highly flavored, is relishable and perfectly harmless. It needs thorough cooking and proper seasoning to make it most satisfactory. The host plant really furnishes the most of the material eaten. The parasite, the red hypomyces, forms but a thin layer over the surface of the host plant. By peeling away all the red part and cooking only the white interior the dish would be composed entirely of the flesh of the host. By utilizing the red part only, that is the hypomyces, the quantity would be so small as scarcely to be worthy of consideration.

The attack by the parasite must be made early in the development of the host, for it is already discolored and deformed when it has but partly emerged from the ground. The spores of the parasite probably pass the winter in the ground and germinate when, by the early development of the host or by other causes, they are brought in contact with it. Usually the parasite fruits on the hymenium and stem of the host and these parts therefore are dotted by the mouths of the perithecia of the parasite and more highly colored than the upper surface. Still, the change of color of the upper surface shows that the influence of the parasite extends to it.

SPECIES OF CRATAEGUS FOUND WITHIN TWENTY MILES OF ALBANY

BY C. S. SARGENT AND C. H. PECK

Early in 1902 Prof. C. S. Sargent informed the writer that he had noticed some fine patches of thorn bushes a short distance west of Albany and suggested that it might be well to examine them. The suggestion was promptly adopted and this paper is one of the results of that suggestion. At that time three species and their supposed varieties constituted the known Crataegus flora of the territory now under consideration. At the present time 54 native and one introduced species are known to be included in it. This territory is bounded by a circumference which has Albany for its center and a line 20 miles long for its radius. Only certain portions of the northern half of this circle have been carefully explored. These parts or localities may be named and described as follows.

North Albany lies just north of the city and is bounded on the north by Ford road, east by Troy road, south by North First street and west by the road running north from Loudonville road to the junction of Ford road with Northern boulevard.

West Albany includes Tivoli hollow and its adjoining hillsides. It lies on both sides of the New York Central & Hudson River Railroad tracks between the city of Albany and the railroad shops at West Albany.

Menands includes the territory between the outlet of Little's pond on the north and Ford road on the south, and between the Erie canal on the east and the northern extension of the Boulevard from Ford road to Little's pond on the west. It includes the canal lot, Troy road and tollgate localities, Golf ground and Boulevard pasture.

North Greenbush lies east of the Hudson river and extends north from Forbes avenue 1 mile and east from the river about ½ mile. It includes Forbes manor grounds.

Greenbush includes the hillsides east of Rensselaer and between Nassau road on the south and the old red mill creek on the north. It is divided into two parts by a ravine and small stream.

Watervliet is used to designate the hills and valley of Dry river just west of the city of Watervliet. It has not been thoroughly explored.

Lansingburg is a small area extending north from the car barns about ½ mile and east from the Hudson river scarcely more than 2 furlongs. It is a small area but one rich in species. It contains one species not yet found elsewhere, and two found in no other place within the limits covered by this essay.

Albia is used to designate a small strip of land lying between the electric road and the Wynantskill creek about 2 furlongs south of the Albia car station.

Wynantskill designates a strip of land along the Sand Lake turnpike, beginning at the junction of the Poestenkill road and running south about 1 mile.

Sand Lake is used in this article to designate a comparatively small part of the town of that name, lying near its center and about 10 miles east of Albany. One species is peculiar to this locality and four are found in a single rocky pasture.

Thompson Lake designates a narrow strip of territory lying along the western and southeastern shore of the lake of that name. It is about 18 miles in a direct line west from Albany. Crataegus dilatata Sarg. occurs here, but is not known to be elsewhere in our present limits.

Hillsides, ravines and the margins of lakes and streams are favorite habitats of species of Crataegus. Those in the immediate vicinity of Albany grow for the most part in clayey soil. A few grow apparently in sandy soil but in some places the sand forms a thin stratum over clay and it is possible that the roots of the thorn bushes may penetrate to the clay. In the Lansingburg locality the soil is a shaly loam formed by the disintegration of Hudson River shales. This soil is apparently very suitable to species of the group Intricatae. All of the five species of this group known to occur in our State are found here. One of these has yet been found in no other place.

The peculiar tendency of species of Crataegus to flock together is strikingly illustrated in our territory. It is rare to find any large area occupied by a single species. Where many thorn trees and bushes grow together there are usually many species. A remarkable example of this kind is found in a narrow strip of pasture

land bordering the Erie canal near Menands. Here 10 species are growing in an area of about 1 acre. The closest condensation of numerous species that I have seen anywhere is near Albia where nine of our native species are growing in a kind of irregular row along the west bank of the Wynantskill creek. The length of the row is about 100 feet. It is also worthy of remark that three of these species, Crataegus ferentaria, C. rhombifolia and C. succulenta, belong to the group Tomentosae. Such close associations of members of a single group as this and the one at Lansingburg are very significant and when more fully understood may possibly throw some light on the interesting problem of the development of species.

Rochester and its vicinity, with 41 species, are justly thought to be unusually prolific in species of Crataegus, but Albany and its vicinity surpass even that rich Crataegus center in the number of its known species.

From the synoptic table here given, the range of each species and the number of species in each locality can easily be ascertained.

Crataegus tomentosa, which has not recently been found in our limits, and Crataegus oxyacantha, which is growing spontaneously in the North Albany locality, but which is an introduced species, are omitted from the table.

SYNOPTIC TABLE

	North Albany	West Albany	Menands	North Greenbush	Greenbush	Watervliet	Lansingburg	Albia	Wynantskill	Sand Lake	Thompson Lake
Crataegus											
acclivis	+	...	+	...	...	...	...	...	...	...	...
acuminata	+	+	...	...	...	...	...	...	...	...	...
ambrosia	...	...	+	...	...	...	...	...	...	...	...
ascendens	...	...	...	...	...	...	...	...	...	...	+
asperifolia	...	...	+	...	...	...	...	...	...	...	...
beckiana	...	...	...	+	...	...	...	...	...	...	...
casta	...	...	...	+	...	...	...	...	...	...	...
caesariata	+	...	...	...	...	...	...	...	+	...	...
champlainensis	+	...	+	+	...	...	...	...	...	...	...
coccinea	+	...	...	...	...	...	...	...	...	...	...
" rotundifolia	...	...	...	...	...	+	...	+	+	...	...
conjuncta	+	+	+	+	+	...	+	...	...	...	...
conspicua	...	...	+	...	...	...	...	...	...	...	...
contortifolia	+	+	+	+	...	...	...	...	...	...	...
crus-galli	+	+	+	+	+	+	...	...	...	...	...
delucida	+	+	+	...	...	...	...	...	...	...	...
demissa	...	+	+	...	+	...	...	+	...	...	...
dilatata	...	...	...	...	...	...	...	...	...	...	+
dissona	+	+	...	...	+	+	+	...	...	...	+
divergens	...	...	...	+	...	...	...	...	...	...	...
dodgei	+	+	+	...	...	...	+	...	...	...	...
durobrivensis	+	+	...	...	...	...	...	...	...	...	...
eatoniana	...	...	+	...	...	...	...	...	...	...	...
edsoni	...	...	...	...	...	...	+	...	...	...	...
exclusa	+	...	+	...	+	...	...	+	...	...	...
ferentaria	+	...	...	...	...	...	...	+	...	...	...
flagrans	...	...	...	+	...	...	...	...	...	...	...
foetida	+	...	...	...	...	+	+	...	...	...	...
gemmosa	...	...	+	...	...	...	...	...	...	...	...
genialis	+	+	+	+	+	+	...	+	+	+	...
halliana	+	...	+	...	...	...	...	...	...	...	...
helderbergensis	...	...	...	...	...	...	...	...	...	...	+
holmesiana	+	+	+	+	...	+	...	+	...	...	+
howeana	+	...	+	...	...	...	...	...	...	...	...
hudsonica	...	+	+	...	+	...	...	...	...	...	...
hystericina	...	...	...	...	...	...	...	...	...	...	+
illuminata	+	+	...	+	...	...	...	...	...	...	...
intricata	+	+	+	...	+	+	+	...	...	...	...
lobulata	...	...	+	...	...	...	...	...	...	...	...
mellita	...	...	...	...	...	...	...	...	...	+	...

SYNOPTIC TABLE (*continued*)

	North Albany	West Albany	Menands	North Greenbush	Greenbush	Watervliet	Lansingburg	Albia	Wynantskill	Sand Lake	Thompson Lake
Crataegus (*continued*)											
menandiana	...	...	+	...	...	...	...	...	...	...	...
modesta	+	+	+	...	+	+	+	...	...	...	...
oblongifolia	...	...	+	...	...	...	...	...	...	...	...
peckii	...	...	...	...	...	...	+	...	...	...	...
pentandra	...	...	+	+	+	...	...	...	...	...	...
polita	...	...	...	...	...	...	...	...	...	+	...
pruinosa	+	+	+	...	...	...	+	...	...	...	...
punctata	+	+	+	+	+	+	+	+	...	+	...
" aurea	+	+	+	+	...	...	...	...	...	...	...
" canescens	...	...	...	+	...	...	...	...	...	...	...
rhombifolia	+	+	...	...	...	...	...	+	...	...	+
robbinsiana	...	+	...	...	+	...	...	...	...	+	...
rubrocarnea	+	...	...	...	...	...	...	...	...	...	...
sejuncta	...	+	...	...	...	...	...	...	...	...	+
spissiflora	...	...	+	...	...	...	...	...	...	...	...
succulenta	+	...	...	...	...	...	..	+	...	...	...
verecunda	...	...	...	...	...	...	+	...	...	...	...
54	27	20	28	13	12	9	11	9	3	5	8

CRUS-GALLI

Stamens 10

Anthers rose color

Crataegus crus-galli Linnaeus

Spec. 476 (1753).—Sargent, Silva N. Am. iv. 91, t. 178; Man. 368, f. 286.

North Albany, West Albany, Menands, North Greenbush, Greenbush and Watervliet. Common. Charles H. Peck.

Stamens 10-14

Anthers white, sometimes faintly tinged with pink

Crataegus helderbergensis n. sp. Sarg.

Leaves obovate, to nearly oval on leading shoots, rounded or rarely acute or short-pointed at the apex, gradually narrowed downward from near the middle, concave cuneate and entire below, coarsely and often doubly serrate above, with straight glandular teeth, more than half grown when the flowers open during the first week in June, and then membranaceous, dark yellow green and covered on the upper surface with short pale hairs and sparingly villose pubescent below along the midribs and veins, at maturity subcoriaceous to coriaceous, glabrous, dark green and very lustrous above, pale yellow green and still pubescent below, 4-6 cm long and 3-4 cm wide, with narrow prominent orange-colored midribs often tinged with red below toward the base, and four or five pairs of slender primary veins without the parenchyma and extending obliquely to above the middle of the leaf; petioles stout, wing-margined to below the middle, villose along the upper side while young, becoming nearly glabrous, occasionally glandular, with bright red stipitate caducous glands, 1-1.2 cm in length, leaves on vigorous shoots mostly obovate, rather broader in proportion to their length, often 7-8 cm long and 5 cm wide. Flowers 1.3-1.5 cm in diameter, on slender elongated densely villose pedicels, in usually 15 to 20–flowered hairy corymbs, with linear bracts and bractlets, fading red and mostly deciduous before the flowers open; calyx tube narrowly obconic, covered specially toward the base, with long matted white hairs, the lobes slender, acuminate, glandular serrate, with minute dark red stipitate glands, bright green and glabrous on the outer and villose pubescent on the inner surface, reflexed after anthesis; stamens 10 to 14, usually 10; anthers white, rarely faintly tinged with pink; styles two or three. Fruit ripening from the first to the middle of October and persistent till after the leaves have fallen; on long slender

villose pedicels, in few-fruited drooping clusters, short-oblong to obovate, full and rounded at the apex, gradually narrowed to the base, crimson, lustrous, marked by occasional dots, about 1 cm long and 8 mm wide; calyx little enlarged, with a short tube, a narrow deep cavity, and spreading or reflexed glandular serrate lobes pubescent on the upper side and often deciduous from the ripe fruit; flesh thin, dry and mealy, yellow or orange color; nutlets 2 or 3, full and rounded at the ends, ridged on the back, with a broad often grooved ridge, 8-9 mm long and 4-5 mm wide.

A tree 2-3 m high, with a short stem 5-10 cm in diameter, wide-spreading mostly horizontal branches forming a flat topped head, the stout zigzag branchlets bright orange color and coated with long matted white hairs when they first appear, becoming glabrous, orange or reddish brown and lustrous during their first season and ashy gray the following year, and armed with many slender straight or slightly curved bright purplish or chestnut-brown shining spines often pointing toward the base of the branch and 4.5-7 cm long.

Near Thompson Lake, Helderberg region, Charles H. Peck (#76n, type), June and September 1903, 1904.

Easily distinguished from the other northern species of this group by the nearly white anthers, by the exceedingly villose pedicels, the villose pubescent underside of the midribs and veins, and from several southern and southwestern species with hairy inflorescence, by the shape of the leaves and the character of the fruit.

PUNCTATAE

Stamens 20

Anthers rose color or yellow

Crataegus punctata Jacquin

Hort. Vind. i. 10, t. 28 (1770).—Sargent, Silva N. Am. iv. 103, t. 184; Man. 389, f. 308.

North Albany, West Albany, Menands, Albia, Greenbush, North Greenbush, Watervliet and Sand Lake. Very common. Charles H. Peck.

Crataegus punctata var. **aurea** Aiton

Hort. Kew. ii. 170 (1789).

North Albany, West Albany, Greenbush, North Greenbush, Menands, Charles H. Peck.

Crataegus punctata var. **canescens** Britt.

Bul. Torrey Bot. Club, xxi. 231 (1894).—Sargent, Man. 389.

North Greenbush, Charles H. Peck.

Anthers pale pink

Crataegus eatoniana n. sp. Sarg.

Leaves ovate to obovate, acute and often short-pointed at the apex, gradually or rarely abruptly narrowed to the concave cuneate entire base, finely doubly serrate, with straight or incurved glandular teeth, and usually slightly divided into four or five pairs of narrow acuminate lateral lobes, nearly fully grown when the flowers open the middle of May and then membranaceous, light yellow green, smooth and glabrous on the upper surface with the exception of a slight pubescence along the midribs and veins, pale and slightly hairy along the midribs and veins below, at maturity thin but firm in texture, dark bluish green and glabrous above, pale yellow green and almost glabrous below, 5.5-8 cm long and 4.5-5.5 cm wide, with stout yellow midribs and slender primary veins extending obliquely to the points of the lobes; petioles slender, wing-margined at the apex, slightly grooved and puberulous on the upper side, becoming glabrous, 1.5-3 cm in length. Flowers about 1.5 cm in diameter, on stout glabrous pedicels, in wide many-flowered corymbs, the lower peduncles from the axils of upper leaves, with obovate to linear obovate or linear bracts and bractlets glandular serrate toward the apex and persistent till after the flowers open; calyx tube narrowly obconic, glabrous, the lobes slender, red and glandular at the acuminate apex, entire or occasionally sparingly glandular toward the base, glabrous on the outer and slightly hairy on the inner surface; stamens 16 to 20; anthers pale pink; styles two or usually three. Fruit on slender drooping red pedicels, in usually 5 to 10-fruited clusters, short-oblong to depressed-globose, full and rounded at the apex, slightly narrowed and rounded at the base, bright cherry-red, lustrous, marked by small pale dots, 1.2-1.4 cm long and 1-1.2 cm wide; calyx prominent, with a broad deep cavity and spreading appressed lobes mostly deciduous from the ripe fruit; flesh thick, dry and mealy, tinged with red; nutlets two or three, full and rounded at the apex, ridged on the back, with a broad rounded ridge, 6-7 mm long and about 5 mm wide.

A shrub 3-4 m high, with many erect stems covered with dark brown bark and spreading into thickets, stout branches, the lower spreading, the upper ascending, and slender nearly straight branchlets marked by oblong pale lenticels, dark orange color and slightly hairy when they first appear, soon glabrous, bright red brown and lustrous during their first winter and dull gray brown the following year, and armed with slender straight or

slightly curved bright chestnut-brown shining ultimately gray spines 3-4.5 cm long, much elongated and branched on old stems and large branches.

Menands, Golf grounds, Charles H. Peck (♯ 3. tgm, type). May and October.

This species is named in memory of Amos Eaton (1776-1842)-principal and senior professor in the Rensselaer Polytechnic Institute of Troy and author of the *Manual of Botany of North America*,

PRUINOSAE

Stamens 20

Anthers rose color

Crataegus pruinosa K. Koch

Verhandl. Preuss. Gart. Verein. neue reihe, i, 246 (1874).—Sargent, Silva N. Am. xiii. 61, t. 648; Man. 411, f. 331.

Lansingburg, Peck and Sargent, August 1905.

Anthers pale pink

Crataegus howeana n. sp. Sarg.

Leaves ovate, acute or acuminate, full and rounded or gradually narrowed and cuneate at the entire base, finely and often doubly serrate above, with straight glandular teeth, and usually slightly divided into three or four pairs of spreading acuminate lateral lobes, nearly half grown when the flowers open about the middle of May and then membranaceous, light yellow green, smooth and sparingly pubescent along the midribs above and pale and glabrous below, at maturity thin, glabrous, blue green, dark and dull on the upper and paler on the lower surface, 3-4 cm long and 2.5-3 cm wide, with slender midribs and thin primary veins extending to the points of the lobes; petioles slender, slightly wing-margined at the apex, glandular, with occasional minute, dark, often persistent glands, 1.4-2 cm in length; stipules linear, acuminate, finely glandular serrate, fading red, caducous; leaves on vigorous shoots broadly ovate to nearly orbicular, full and rounded or truncate at the base, more coarsely serrate and more deeply lobed, 5-6 cm long and wide, with reddish, often conspicuously glandular petioles 2-3 cm in length. Flowers 1.3-1.8 cm in diameter, on slender glabrous pedicels, in 5 to 10-flowered corymbs, with linear to linear obovate glandular rose-colored bracts and bractlets often persistent till after the flowers open; calyx tube broadly obconic, glabrous, the lobes abruptly narrowed from wide bases, acuminate, short, entire, tipped with dark red glands, reflexed after anthesis;

stamens 20; anthers pale pink; styles three to five. Fruit ripening about the 20th of October and soon falling, on long slender drooping pedicels, usually in five to seven-fruited clusters, globose to depressed-globose, angular reddish and pruinose when fully grown, becoming scarlet and lustrous at maturity, 1.3-1.5 cm in diameter; calyx prominent, with a short tube, a wide shallow cavity, and spreading lobes dark red on the upper side below the middle, their tips usually deciduous from the ripe fruit; flesh thin, reddish, of a pleasant flavor; nutlets three to five, full and rounded at the base, acute or rounded at the apex, very prominently ridged on the back, with a broad deeply grooved ridge, 7-8 mm long and about 5 mm wide.

An intricately branched shrub 3-5 m high, with several stout ascending and spreading stems covered below with dark brown scaly bark, and stout zigzag branchlets marked by numerous small lenticels, dark orange-green and glabrous when they first appear, becoming light red brown in their first winter and brown or ashy gray the following year, and armed with many small straight red brown spines 2-3 cm long.

Menands, Troy road, Albany co., Charles H. Peck (# 75, type), May and October 1903; North Albany, (# 4 B), May and October 1903, June 1904.

This species is named in memory of Elliot C. Howe (1828-1899), author in connection with Dr H. C. Gordinier of a *Flora of Rensselaer County* [*see* Bul. Torrey Bot. Club, xxvi. 251].

Crataegus casta n. sp. Sarg.

Leaves ovate to oval, acuminate, gradually or abruptly narrowed and concave cuneate or broad and rounded at the entire base, sharply doubly serrate above, with straight glandular teeth, and slightly divided into numerous small acuminate spreading lobes, nearly half grown when the flowers open the middle of May and then membranaceous, light yellow green and glabrous with the exception of a few hairs at the base of the upper side of the midribs, at maturity thin, light blue green, smooth and lustrous on the upper and dull blue green on the lower surface, 5-6 cm long and 4-5 cm wide, with thin yellow midribs, and four or five pairs of slender primary veins extending obliquely to the points of the largest lobes; petioles slender, slightly wing-margined at the apex, sparingly villose on the upper side while young, soon glabrous, 2-3.5 cm in length. Flowers about 1.5 cm in diameter, on slender glabrous pedicels, in usually five to six-flowered compact corymbs, with

lanceolate acuminate glandular rose-colored bracts and bractlets; calyx tube broadly obconic, glabrous, the lobes gradually narrowed from wide bases, acuminate, entire or slightly glandular serrate near the middle, glabrous, reflexed after anthesis; stamens 20; anthers pale pink; styles usually 3. Fruit ripening early in October, on short stout erect or drooping pedicels, in usually three or four-fruited clusters, obovate, rounded at the apex, narrowed toward the usually pointed base, bright cherry-red, covered with a glaucous bloom, marked by occasional small pale dots, 1-1.3 cm long and 8-10 mm wide; calyx prominent, with a short distinct tube, a broad shallow cavity, and spreading closely appressed lobes dull red on the upper side below the middle and mostly persistent on the ripe fruit; flesh thin, light yellow, dry and mealy; nutlets three, full and rounded at the base, gradually narrowed and acute at the apex, rounded and sometimes slightly and irregularly ridged on the back, light colored, 6-7 mm long and about 5 mm wide.

A shrub 2-3 m high, with numerous ascending stems and slender nearly straight branchlets marked by small dark lenticels, dark orange color when they first appear, becoming bright chestnut-brown and very lustrous in their first winter and dull gray brown the following year, and armed with slender nearly straight purplish shining spines 2.5-3 cm long.

Borders of woods at the margins of the bottom lands of the Hudson river at North Greenbush, Charles H. Peck (#23ng, type) May and October 1904; Peck and Sargent, August 1905.

Anthers white

Crataegus conjuncta Sarg.

Rhodora, v. 57 (1903).

North Albany, West Albany, Greenbush, North Greenbush, Lansingburg, Menands, Charles H. Peck (#14, 18, 57), May, June and October 1903 and 1904. Common; also southern New England to Illinois.

Stamens 10 or less

Anthers rose color

Crataegus dissona Sarg.

Rhodora, v. 60 (1903).

North Albany, West Albany, Greenbush, Lansingburg, Thompson Lake, Watervliet, Charles H. Peck (#171), May and October 1903; also southern New England to eastern Pennsylvania and northern Illinois.

Crataegus robbinsiana Sarg.

Rhodora, vii. 197 (1905).

West Albany, Greenbush, Sand Lake, Charles H. Peck (# 32, 112), May and October 1903 and 1904; also in western and southern Vermont and western New Hampshire.

TENUIFOLIAE

Stamens 5-10

Anthers rose color

Crataegus pentandra Sarg.

Rhodora, iii. 25 (1901); Silva N. Am. xiii. 129, t. 681.

West Albany (# 100), North Greenbush (# 152 with very narrow long stalked leaves and small fruit on long pedicels), Menands, Troy road (# 58 tr), Charles H. Peck, May and September 1903; also common in western New England.

Crataegus genialis Sarg.

Rhodora, v. 148 (1903).

North Albany, West Albany, Greenbush, North Greenbush, Menands, Sand Lake, Albia and Watervliet. Common. Charles H. Peck (# 13, 19, 88), May and September 1902; also in western New England.

Crataegus demissa Sarg.

Rhodora, v. 139 (1903).

West Albany, Greenbush, Albia. Rare. Charles H. Peck (# 89), May and September 1904; also in Gansevoort, Saratoga co. and in western Massachusetts and Vermont.

Crataegus delucida Sarg.

Rhodora, v. 139 (1903).

Hills; North Albany, West Albany and Menands. Very common and the prevailing species. Charles H. Peck (# 3 B, 36), May, September and October 1902; also in western Vermont.

Crataegus rubrocarnea n. sp. Sarg.

Leaves ovate, acute, gradually or abruptly narrowed and cuneate or occasionally broad and rounded at the base, finely, often doubly serrate, with straight slender glandular teeth, and slightly divided into four or five pairs of narrow acuminate lateral lobes, about half grown when the flowers open from the 10th to the 15th of May and then membranaceous, light yellow green and covered above by short white hairs, pale and glabrous below, at maturity thin, dark yellow green and glabrous on the upper and pale or glaucous on the

lower surface, 5-7 cm long and 4-6 cm wide, with slender yellow midribs, and thin primary veins arching obliquely to the points of the lobes; petioles slender, slightly wing-margined at the apex, nearly terete, sparingly glandular, 2-3 cm in length; leaves on vigorous shoots more coarsely serrate and more deeply lobed, usually 7-8 cm long and 6-7 cm wide. Flowers 1.5-1.7 cm in diameter, on short slender pedicels, in long-branched many-flowered compact corymbs; calyx tube narrowly obconic, glabrous, the lobes slender, acuminate, glabrous, minutely glandular serrate, reflexed after anthesis; stamens seven or eight, or occasionally 10; anthers purple; styles two or three, surrounded at the base by a broad ring of pale tomentum. Fruit ripening and falling early in October, on slender drooping reddish pedicels, in few-fruited clusters, short-oblong to subglobose, scarlet, lustrous, marked by occasional dark dots, 1.2-1.4 cm in diameter; calyx little enlarged, with a deep narrow cavity and closely appressed lobes, dark red on the upper side toward the base and mostly persistent on the ripe fruit; flesh thick, juicy, dark red; nutlets two or three, gradually narrowed and acute at the ends, ridged on the back, with a high broad deeply grooved ridge, 6-7 mm long and about 5 mm wide.

A shrub 3-4 m high, with erect stems covered below with blackish or grayish black bark, widespreading and ascending branches, and slender nearly straight branchlets marked by small pale lenticels, orange-green and glabrous when they first appear, becoming bright chestnut-brown and lustrous in their first winter and dull gray brown the following year, and armed with numerous stout slightly curved bright chestnut-brown and shining spines, 3.5-4 cm long.

Hillsides in clay soil; North Albany, Charles H. Peck (#56, type), May, August and September 1904, 1905.

Well distinguished by its large nearly globose fruit with red succulent flesh.

Crataegus acuminata n. sp. Sarg.

Leaves ovate or oblong-ovate, long-pointed and acuminate at the apex, gradually narrowed and concave cuneate or broad, rounded or subtruncate at the entire base, finely doubly serrate above, with incurved glandular teeth, and deeply divided into three to five pairs of narrow acuminate mostly spreading lateral lobes, more than half grown when the flowers open from the middle to the 20th of May and then membranaceous, light yellow green and covered above by short white hairs, pale and glabrous below, at maturity thin, glabrous, dark yellow green and somewhat lustrous on the upper and pale on the lower surface, usually 4.5-5 cm long and

2-3 cm wide, or occasionally 6-7 cm long and 4-5 cm wide, with thin yellow midribs and slender primary veins arching obliquely to the points of the lobes; petioles very slender, slightly wing-margined at the apex, nearly terete, glandular, with occasional scattered glands, glabrous, 1.5-2 cm in length; leaves on vigorous shoots rounded, truncate or abruptly cuneate at the broad base, coarsely serrate, more deeply lobed, often 7-8 cm long and 5-6 cm wide. Flowers on slender glabrous pedicels, in usually five to eight-flowered corymbs; calyx tube narrowly obconic, glabrous, the lobes slender, acuminate, glabrous, entire or sparingly glandular near the middle, reflexed after anthesis; stamens seven or eight; filaments persistent in fruit; anthers dark red; styles three or four, surrounded at the base by a narrow ring of pale tomentum. Fruit ripening from the first to the middle of September, on elongated slender pedicels, in few-fruited drooping clusters, short-oblong to subglobose, full and rounded at the ends, crimson, lustrous, 1-1.2 cm long, 8-9 mm wide; calyx little enlarged, with a wide deep cavity and narrow closely appressed entire or slightly serrate lobes dark red on the upper side below the middle and usually persistent on the ripe fruit; flesh yellow, juicy, of excellent flavor; nutlets three or four, usually three, gradually narrowed and rounded at the ends, slightly ridged on the back, with a low rounded ridge, about 6 mm long and 4 mm wide.

A shrub 3-4 m high, with slender suberect or diverging stems, slender nearly straight branchlets marked by numerous small dark lenticels, light orange-green and glabrous when they first appear, light chestnut-brown and lustrous during their first winter, becoming dull gray brown in their second year, and armed with numerous slender curved chestnut-brown shining spines 2-3 cm in length.

West Albany (east side) and North Albany, Charles H. Peck (# 93 wa, type), May, August and October 1904.

Crataegus ascendens Sarg.

Rhodora, v. 141 (1903).

Thompson Lake, Charles H. Peck (# 76), May and September 1903; also in western Vermont.

Stamens 20

Anthers rose color or purple

Crataegus edsoni Sarg.

Rhodora, vii. 205 (1905).

Lansingburg, Charles H. Peck (# 151), May and September 1903; also from western Vermont to western New Hampshire.

Crataegus mellita n. sp. Sarg.

Crataegus brainerdi Peck (not Sargent), N. Y. State Mus. Bul. 75. 1904. p. 12.

Leaves ovate, acuminate, rounded or occasionally cuneate at the glandular base, finely doubly serrate above, with slender glandular teeth, occasionally divided into four or five pairs of narrow acuminate lobes, about half grown when the flowers open the middle of May and then membranaceous, dark yellow green, villose pubescent along the midribs and slightly roughened by short white hairs above and pale and glabrous below, at maturity thin, dark bluish green and scabrate on the upper and pale blue green on the lower surface, 4.5-6 cm long and 3-5 cm wide, with slender yellow midribs, and thin primary veins extending obliquely to the points of the lobes; petioles slender, slightly wing-margined at the apex, grooved on the upper side, glabrous, glandular toward the apex, 2-4 cm in length. Flowers fragrant, about 1.5 cm in diameter, on short slender glabrous pedicels, in compact 6 to 12-flowered corymbs; calyx tube narrowly obconic, glabrous, the lobes usually entire or sparingly glandular serrate near the middle, often tinged with red, reflexed after anthesis; stamens 20; filaments elongated, becoming red or pink, persistent and conspicuous on the fruit; anthers light red; styles three or four, usually three, surrounded at the base by a few pale hairs. Fruit ripening late in September, on short erect reddish pedicels, in few-fruited clusters, oblong to oblong-obovate, full and rounded at the apex, gradually narrowed at the base, bright scarlet, lustrous, 1.2-1.4 cm long and 8-9 mm wide; calyx prominent, with a short tube, a narrow deep cavity, and reflexed lobes bright red on the upper side below the middle and persistent on the ripe fruit; flesh thin, yellow and edible; nutlets usually three, gradually narrowed and rounded at the ends, ridged on the back, with a low narrow ridge, about 7 mm long and 4 mm wide.

A shrub 2-3 m high, with ascending or suberect stems, and slender nearly straight branchlets marked by numerous small dark lenticels, dark orange colored tinged with red when they first appear, becoming light chestnut-brown, lustrous and pale gray brown in their second season, and armed with light chestnut-brown shining spines 3-3.5 cm long.

Rocky pastures. Rare. Sand Lake, Charles H. Peck (#23 sl, type), May and September 1903, June 1905.

The fragrant flowers are visited by large numbers of honeybees.

MOLLES

Stamens 10

Anthers pale yellow

Crataegus champlainensis Sarg.

Rhodora iii. 20 (1901); Silva N. Am. xiii. 105, t. 667; Man. 438, f. 356.

North Albany, Menands, North Greenbush, Charles H. Peck (# 2 gg), May and September 1904, 1905.

Crataegus contortifolia n. sp. Sarg.

Leaves ovate, acute, rounded, truncate or occasionally abruptly cuneate at the broad entire or glandular base, sharply doubly serrate above, with straight gland-tipped teeth, and slightly divided into four or five narrow acuminate lateral lobes, about half grown when the flowers open early in May and then membranaceous, light yellow green and roughened above by short white hairs, and villose below, specially along the midribs and veins, with long soft hairs mostly persistent during the season, at maturity thick and firm to subcoriaceous, with margins usually more or less contorted or twisted, yellow green, lustrous and scabrate on the upper and dull and pale on the lower surface, 7-8 cm long and nearly as wide, with stout rose-colored midribs, and thin primary veins arching obliquely to the points of the lobes; petioles slender, slightly wing-margined at the apex, thickly covered when they appear with hoary tomentum, becoming villose or pubescent, glandular while young, 3-3.5 cm in length; stipules linear, elongated, acuminate, glandular, fading rose color, caducous; leaves on vigorous shoots more coarsely serrate and more deeply lobed, thicker, often 9-10 cm long, with more prominent midribs and veins, and stout petioles bright rose color and conspicuously glandular above the middle, with dark stipitate persistent glands. Flowers 1.8-2 cm in diameter, on short, stout, hoary tomentose pedicels, in compact, usually 9 to 12-flowered, hoary-tomentose corymbs, with lanceolate acuminate glandular bracts and bractlets fading rose color; calyx tube narrowly obconic, coated with thick hoary tomentum, the lobes slender, acuminate, glandular serrate, villose pubescent, reflexed after anthesis; stamens 10; anthers pale yellow; styles four or five, surrounded at the base by a narrow ring of white hairs. Fruit ripening from the middle to the end of August and soon falling, on stout pedicels covered with matted pale hairs, in compact many-fruited drooping clusters, subglobose to short oblong, bright cherry-red, lustrous, marked by occasional large dark dots, covered with soft whitish hairs most abundant at the ends, about 1.5 cm in

diameter; calyx little enlarged, hoary tomentose, with a broad shallow cavity, and spreading and appressed glandular serrate lobes dark red on the upper side below the middle; flesh thick, yellow, dry and mealy; nutlets four or five, usually four, full and rounded at the base, gradually narrowed and acute at the apex, rounded and slightly ridged on the back, 8-9 mm long and about 6 mm wide.

A shrub sometimes 6-7 m high, but usually much smaller, with diverging stems 12-15 cm in diameter, covered with dark brown scaly bark, stout spreading gray branches forming a roundtopped compact head, and thick zigzag branchlets marked by oblong dark lenticels, thickly covered with hoary tomentum when they first appear, light chestnut-brown, lustrous and sparingly villose during their first season, dull gray or grayish brown, duller and glabrous in their second year, and ultimately ashy gray, and armed with numerous stout or slender nearly straight purplish spines 4-7 cm long.

Hills; North Albany, Charles H. Peck (#53, type), May, June and September 1902; Peck and Sargent, October 1902, August 1905. Near the tollgate, Troy road, Charles H. Peck (#2), May and October 1904; Peck and Sargent, August 1905. Bottoms of the Hudson river, North Greenbush, Peck and Sargent, August 1905.

Anthers pink or rose color

Crataegus exclusa Sarg.

Rhodora, v. 108 (1903).

North Albany, West Albany, Menands, Albia, Greenbush, Charles H. Peck (#51), May and September 1902.

Crataegus oblongifolia n. sp. Sarg.

Leaves oblong-ovate, acute or acuminate, gradually narrowed and cuneate or rounded at the entire or glandular base, coarsely doubly serrate above, with straight glandular teeth, and slightly divided into four or five pairs of small acuminate spreading lobes, more than half grown when the flowers open about the 20th of May and then thin, light yellow green, and covered above by short white hairs and villose below along the midribs and veins, at maturity thick and firm in texture, yellow green, glabrous on the upper, sparingly villose on the lower surface, reticulate-venulose, 5-7 cm long and 4-5 cm wide, with stout deep rose-colored midribs, and prominent primary veins extending obliquely to the points of the lobes; petioles stout, wing-margined at the apex, deeply grooved, covered with matted pale hairs more or less persistent during the

season, sparingly glandular near the apex, deep rose color in the autumn, 1.5-2 cm long; stipules linear, acuminate, glandular, caducous; leaves on vigorous shoots rounded at the base, coarsely serrate, more deeply lobed, coriaceous, 7-8 cm long and 5-6 cm wide, with prominent midribs and veins. Flowers 1.8-2 cm in diameter, on short pedicels thickly clothed with long white hairs, in compact many-flowered hairy corymbs, with linear glandular bracts and bractlets fading rose color; calyx tube narrowly obconic, covered with long matted white hairs, the lobes slender, acuminate, glandular, villose pubescent, reflexed after anthesis; stamens 10; anthers rose color; styles three or four, surrounded at the base by a narrow ring of white hairs. Fruit ripening early in September, on short hairy pedicels, in 6 to 10-fruited erect or spreading clusters, pyriform till nearly grown, subglobose to short-oblong when ripe, dark crimson, lustrous, marked by numerous large pale dots, 1.2-1.5 cm in diameter; calyx little enlarged, with a broad deep cavity, and usually erect or incurved villose lobes mostly persistent on the ripe fruit; flesh thick, yellow, rather juicy; nutlets usually 3, gradually narrowed and rounded at the ends, slightly ridged on the back, with a low narrow ridge, about 7 mm long and 4 mm wide.

A round headed shrub 3-4 m high, with numerous stout stems covered below with dark brown scaly bark and light olive-green above, and slender slightly zigzag branchlets marked by many small oblong pale lenticels, thickly coated when they first appear with matted pale hairs, light chestnut-brown and very lustrous during the first season and darker colored the following year, and armed with numerous stout nearly straight purplish shining spines 2.5-3.5 cm long.

Low moist ground; Menands, near the Erie canal, Charles H. Peck (#51 mc, type), May and September 1904, and on the Golf grounds, Peck and Sargent (#53), August 1905.

Crataegus spissiflora Sarg.

Proc. Rochester Acad. Sci. iv. 112 (1903).

Menands, Charles H. Peck (#77), May and September 1904; also at Rochester N. Y., and in Ontario.

FLABELLATAE

Stamens 5 to 7

Anthers rose color

Crataegus holmesiana Ashe

Jour. Elisha Mitchell Sci. Soc. xvi. pt ii, 78 (1900).—Sargent, Silva N. Am. xiii. 119, t. 676; Man. 449, f. 366.

North Albany, West Albany, Menands, North Greenbush, Albia and Thompson Lake, Charles H. Peck (#2, 12), May and September 1902; also eastern Massachusetts to Canada, western New York and eastern Pennsylvania.

Crataegus sejuncta n. sp. Sarg.

Leaves ovate, acuminate, rounded or cuneate at the base, sharply and often doubly serrate above, with straight glandular teeth, and divided into four or five pairs of small acuminate spreading lobes, when they unfold deeply tinged with red and coated above with long white hairs, about half grown when the flowers open the middle of May and then thin, yellowish green, scabrate and slightly hairy above along the midribs and pale and sparingly villose along the midribs and veins below, at maturity thin, yellow green and rough on the upper, pale and nearly glabrous on the lower surface, 6-7 cm long, 5-6 cm wide, with stout orange colored midribs, and slender primary veins extending obliquely to the points of the lobes; petioles slender, nearly terete, glandular toward the apex, slightly villose through the season, often tinged with rose color, 2-2.5 cm in length; leaves on vigorous shoots broadly ovate, long pointed, truncate or slightly cordate at the base, coarsely serrate and more deeply lobed. Flowers about 1.5 cm in diameter, on short stout villose-pubescent pedicels, in very compact, hairy, usually 8 to 10-flowered corymbs, with oblong to linear acute glandular bracts and bractlets fading brown and mostly deciduous before the flowers open; calyx tube narrowly obconic, glabrous, the lobes slender, gradually narrowed, long-pointed and acuminate, glandular serrate, glabrous on the outer, villose on the inner surface, reflexed after anthesis; stamens 7 to 10; anthers rose color; styles three or four. Fruit ripening about the middle of September, on short stout slightly hairy pedicels, in few-fruited clusters, subglobose to oval, crimson, lustrous, marked by numerous pale dots, 1.3-1.5 cm in diameter; calyx little enlarged, with a wide shallow cavity, and slender spreading closely appressed glandular serrate lobes slightly hairy on the upper side and mostly persistent on the ripe fruit; flesh thin, yellow, dry and mealy; nutlets three or four, narrowed and rounded at the ends, irregularly ridged on the back, with a broad low grooved ridge, 6-7 mm long and 4-5 mm wide.

A shrub or small tree 4-5 m high, with slender nearly straight branchlets marked by small pale lenticels, dark orange-green and glabrous when they first appear, becoming bright chestnut-brown

and lustrous, and dull gray brown in their second year, and armed with stout nearly straight light chestnut-brown shining spines 2.5-3.5 cm long.

West Albany, Charles H. Peck (#22, type); Thompson Lake, Charles H. Peck (#77 tl), May and September 1904.

To this species probably belongs a common plant of western Massachusetts and western Vermont that has sometimes been referred to C. p o l i t a Sarg., a species with long slender glabrous pedicels and much smaller fruit.

Williamstown, Massachusetts, W. W. Eggleston (#2312); Bennington, Vermont (#2300, 2726); Cornwall, Vermont, Ezra Brainerd (#20).

Crataegus acclivis Sarg.

Proc. Rochester Acad. Sci. iv. 115 (1903).

Menands, Charles H. Peck (#53 bn), May, June and August 1904; North Albany, Charles H. Peck (#51 nan), May and June 1905; also near Rochester, New York, and in southern Ontario.

Crataegus polita Sarg.

Rhodora, v. 112 (1903).

Sand Lake, Charles H. Peck (#22), June and August 1902; also western Massachusetts to southern Connecticut.

Crataegus lobulata Sarg.

Rhodora, iii. 22 (1901); Silva N. Am. xiii. 117, t. 675; Man. 447, f. 364.

Menands, Golf ground, Peck and Sargent (#22 gg), August 17, 1905; also western New England.

DILATATAE

Stamens 20

Anthers rose color

Crataegus dilatata Sarg.

Bot. Gazette, xxxi. 9 (1901); Silva N. Am. xiii. 113, t. 672; Man. 455, f. 371.

Thompson Lake, Charles H. Peck (#75), May, June and September 1903, July 1905; also in Gansevoort, Saratoga co. and from eastern Massachusetts to Canada.

Crataegus hudsonica Sarg.

Man. 457, f. 373 (1905).

Hills; West Albany and Menands, Charles H. Peck (#188, type), May, September and October 1904; Greenbush, October 1905.

Crataegus durobrivensis Sarg.

Trees and Shrubs, i. 3, t. 2 (1902).

North Albany, West Albany, Charles H. Peck (#193); also western New York and Ontario.

ANOMALAE

Stamens 5-15

Anthers rose color

Crataegus asperifolia Sarg.

Rhodora, iii. 31 (1901).

Menands, Boulevard pasture, Charles H. Peck (# 58 bp), May and October 1903; also in western New England.

COCCINEAE

Stamens 5-10

Anthers pale yellow

Crataegus coccinea Linnaeus

Spec. 476 (1753).—Sargent, Silva N. Am. xiii. 133, t. 683; Man. 459, f. 375.

North Albany, Charles H. Peck (# 15), May and September 1904; also eastern New England and western Vermont to the St Louis valley.

Crataegus coccinea var. rotundifolia Sarg.

Bot. Gazette, xxxi. 14 (1901); Silva N. Am. xiii. 134; Man. 460.

Albia and Watervliet, Charles H. Peck (# 4), August 1905.

Crataegus dodgei Ashe

Jour. Elisha Mitchell Sci. Soc. xix. 26 (March 1903).—Sargent, Proc. Phil. Acad. Sci 632 (1905).

Crataegus gravesii Sarg., Rhodora, v. 160 (June 1903).

North Albany, West Albany, Menands and Wynantskill, Charles H. Peck (# 18), May, September and October 1903; also western and southern New England to Michigan and eastern Pennsylvania.

Crataegus caesariata n. sp. Sarg.

Leaves obovate to oval, short-pointed or acuminate at the apex, concave cuneate at the entire base, finely doubly serrate above, with incurved glandular teeth, and divided above the middle into three or four pairs of small acuminate spreading lobes, nearly half grown when the flowers open about the middle of May and then membranaceous, light yellow green, smooth and slightly hairy along the midribs above and pale and glabrous below, at maturity thin, glabrous, yellow green, 3.5-4.5 cm long and 2-3.5 cm wide, with thin slender midribs, and slender veins arching obliquely to the points of the lobes; petioles slender, wing-margined at the apex, sparingly

hairy while young, becoming glabrous, tinged with rose color in the autumn, 1.5-2 cm in length; leaves on vigorous shoots nearly orbicular, coarsely serrate, and more deeply lobed, with broad acuminate lobes, subcoriaceous, 5-6 cm in diameter, with thick midribs and stout rose-colored petioles conspicuously glandular through the season. Flowers on long slender villose pedicels, in usually 10 to 12-flowered hairy corymbs, the lower peduncles from the axils of upper leaves; calyx tube narrowly obconic, slightly hairy, the lobes slender, elongated, acuminate, minutely glandular serrate above the middle, glabrous on the outer, sparingly villose on the inner surface, reflexed after anthesis; stamens 10; anthers pale yellow; styles two or three. Fruit ripening from the middle of September to the first of October, on long villose pedicels, in drooping usually five or six-fruited clusters, oval or slightly obovate, with a deep depression at the insertion of the stalk, dark crimson, lustrous, marked by numerous small dark dots, hairy specially at the ends, 1.2-1.5 cm long and 7-12 mm wide; calyx little enlarged, with a broad shallow cavity, and closely appressed lobes often persistent on the ripe fruit; flesh thick, firm, deeply tinged with red; nutlets usually three, gradually narrowed and rounded at the ends, rounded and only slightly ridged on the back, with a low broad ridge, 6-7 mm long and about 4 mm wide.

A shrub 2-3 m high, with intricately branched ascending stems covered below with dark scaly bark, and slender slightly zigzag branchlets marked by numerous oblong pale lenticels, dark orange-green and villose-pubescent when they first appear, soon becoming glabrous, dark orange-brown during their first season and lighter the following year, and armed with few spines or sometimes unarmed.

Roadsides, North Albany and Wynantskill. Not common. Charles H. Peck (#18 E, type), May, September and October.

Crataegus illuminata n. sp. Sarg.

Leaves rhombic to oblong obovate, acuminate, gradually narrowed and concave cuneate at the entire base, finely, often doubly serrate above, with glandular incurved teeth, and slightly divided above the middle into numerous short wide lobes, at maturity thin, glabrous, yellow green and very lustrous on the upper and pale on the lower surface, 4-6 cm long and 3.5-4 cm wide, with slender yellow midribs, and thin primary veins arching obliquely to the points of the lobes; petioles slender, narrowly wing-margined at the apex, grooved on the upper side, glabrous, 2-2.5 cm in length; leaves on vigorous shoots ovate, acuminate, concave cuneate at the base,

thin, coarsely serrate, deeply lobed, with narrow acuminate lobes, often 8-10 cm long and 6-8 cm wide, with short broadly winged petioles and foliaceous lunate serrate stipules. Flowers not seen. Fruit ripening late in August and early in September, on slender sparingly hairy pedicels, in few-fruited erect or spreading clusters, oval to subglobose, bright cherry-red, lustrous, slightly hairy at the ends, 8-10 mm long and 7-8 mm wide; calyx prominent, with a broad deep cavity, and small acuminate reflexed and closely appressed nearly entire lobes slightly villose on the upper side and persistent on the ripe fruit; flesh thin, greenish yellow, dry and mealy; nutlets three or four, acute at the ends, ridged on the back, with a high narrow often grooved ridge, 6-7 mm long and 4-5 mm wide.

A round topped compact shrub 2-3 m tall, with numerous slender erect stems covered below with dark brown scaly bark and pale above, and slender slightly zigzag light orange-brown branchlets, armed with many slender straight or slightly curved bright chestnut-brown shining spines 3-4 cm long.

Dense thickets on rich bottom lands close to the banks of the Hudson river, North Greenbush, Peck and Sargent (# 72 ng, type), August 17, 1905; North Albany, Charles H. Peck, September 1905.

Stamens 10-18

Crataegus divergens n. sp. Sarg.

Crataegus irrasa var. divergens Peck, N. Y. State Mus. Bul. 75. p. 51. 1904.

Leaves oblong obovate to rhombic, acuminate, gradually narrowed and concave cuneate at the entire glandular base, finely crenately serrate above, with gland-tipped teeth, and divided above the middle into four or five pairs of slender acuminate lobes pointing toward the apex of the leaf, nearly fully grown when the flowers open about the 10th of May and then thin, yellow green, lustrous and sparingly hairy above, pale and slightly villose along the midribs and veins below, with short hairs persistent through the season, at maturity thin but firm in texture, dark yellow green, glabrous and very lustrous on the upper and pale on the lower surface, 4-6 cm long and 3.5-4 cm wide, with slender yellow midribs, and thin veins arching obliquely to the points of the lobes; petioles slender, wing-margined at the apex, grooved on the upper side, villose-pubescent when they first appear, becoming glabrous, glandular toward the

apex, with minute caducous glands, 2.5-3 cm in length; stipules linear-falcate, glandular, fading brown, caducous; leaves on vigorous shoots broadly ovate to rhombic, acuminate, gradually or abruptly cuneate at the base, coarsely serrate, more deeply divided into broad acuminate spreading lobes and often 7-9 cm long and 6-8 cm wide. Flowers 1.3-1.5 cm in diameter, on short stout pedicels coated with long matted white hairs, in very compact 5 to 10-flowered hairy corymbs; calyx tube narrowly obconic, covered at the base with long white hairs and nearly glabrous above, the lobes short, acuminate, laciniately glandular serrate, glabrous on the outer, densely villose on the inner surface, reflexed after anthesis; stamens 10-18; anthers pale yellow; styles usually three. Fruit ripening late in August or early in September, persistent for several weeks, on short slightly hairy pedicels, in usually five to seven-fruited drooping clusters, short oblong to subglobose, scarlet, lustrous, marked by large pale dots, about 1 cm in diameter; calyx little enlarged, with a narrow deep cavity, and spreading and appressed lobes mostly deciduous from the ripe fruit; flesh thin, greenish yellow, dry and mealy; nutlets usually three, full and rounded at the ends, ridged on the back, with a broad low slightly grooved ridge, light colored, 7-8 mm long and 4-5 mm wide.

A shrub 3-4 m high, with numerous small ascending stems, and thin slightly zigzag branchlets thickly coated when they first appear with matted pale hairs, becoming light orange-brown and nearly glabrous during their first season and dark reddish brown the following year, and armed with slender straight purplish spines 2.5-3.5 cm long.

Borders of woods in clayey soil at the margin of the bottoms of the Hudson river; North Greenbush, Charles H. Peck (# 70, type), May, July and October 1903; Peck and Sargent, August 1905.

INTRICATAE

Stamens 10

Anthers pale yellow

Crataegus intricata Lange

Bot. Tidskr. xix. 246 (1894).

North Albany, Menands and Lansingburg, Charles H. Peck (# 112na), May and June 1903; also southern and western New England.

Crataegus foetida Ashe

Ann. Carnegie Mus. i. pt. iii. 389 (1902).

Crataegus baxteri Sarg., Proc. Rochester Acad. Sci. iv. 107. (1903).

North Albany, Charles H. Peck (# 50), May and October 1903; Lansingburg, Charles H. Peck, 1904; also western Massachusetts to western New York and eastern Pennsylvania.

Crataegus modesta Sarg.

Rhodora, iii. 28 (1901); Proc. Phil. Acad. 635 (1905).

Crataegus premora Ashe, Ann. Carnegie Mus.i. pt. iii.391, (1902).

North Albany, West Albany, Greenbush, Menands and Lansingburg, Charles H. Peck (# 111), May and October 1902; also western and southern New England to eastern Pennsylvania.

Crataegus verecunda Sarg.

Proc. Rochester Acad. Sci. iv. 109 (1903).

Lansingburg, Charles H. Peck, June and September 1904; also at Rochester, New York.

Anthers pink

Crataegus peckii Sarg.

Rhodora, v. 63 (1903).

Hills; Lansingburg, Charles H. Peck (# 11), May and October 1902.

TOMENTOSAE

Mature leaves thin

Stamens usually 20

Anthers dark rose color or red

Crataegus tomentosa Linnaeus

Spec. 476 (1753)—Sargent, Silva N. Am. iv. 101, t. 183; Man. 492, f. 406.

Watervliet, H. G. Jesup, June 18, 1869 (not seen in recent years); also westward to Michigan and Missouri, and south to eastern Pennsylvania and along the Appalachian mountains.

Crataegus menandiana n. sp. Sarg.

Leaves elliptic to rhombic or rarely obovate, acute or short-pointed at the apex, gradually narrowed and concave cuneate at the entire base, finely doubly serrate above, with straight glandular teeth, and slightly divided above the middle into five to seven small

acuminate spreading lobes, nearly half grown when the flowers open at the end of May and then thin, yellow green, slightly roughened and villose-pubescent above along the midribs, pale and furnished below with small tufts of axillary hairs, at maturity thin, but firm in texture, glabrous, dull yellow green and very smooth on the upper, paler on the lower surface, 6-9 cm long and 4-6 cm wide, with stout yellow midribs, and slender primary veins deeply impressed on the upper side, petioles stout, broadly wing-margined nearly to the middle, grooved on the upper side, slightly villose while young, soon glabrous, sparingly glandular, with persistent glands, often rose-colored in the autumn, 1.5-2 cm in length. Flowers 1.5-1.7 cm in diameter, on long stout slightly villose pedicels, in usually 10 to 12-flowered wide lax corymbs, the lowest peduncle from the axil of an upper leaf; calyx tube narrowly obconic, glabrous or slightly hairy about the base, the lobes slender, acuminate, glandular on the margins, with minute stipitate glands, glabrous on the outer, villose on the inner surface; stamens 20; filaments elongated; anthers red; styles two to four, surrounded at the base by a few scattered white hairs. Fruit ripening early in October, on short stout slightly hairy reddish pedicels, in broad long-branched few-fruited drooping clusters, subglobose, scarlet, lustrous, marked by large pale dots, about 1.2 cm in diameter; calyx little enlarged, with a broad shallow cavity, and spreading or incurved coarsely serrate lobes mostly persistent on the ripe fruit; flesh yellow, soft and succulent; nutlets two or three, broad and rounded at the base, slightly narrowed and rounded at the apex, rounded and only slightly ridged on the back, penetrated on the inner faces by small shallow irregular cavities about 7 mm long, 4–5 mm wide.

A shrub 6-7 m high, with numerous ascending stems covered with dark scaly bark and spreading into large thickets, and slender nearly straight branchlets marked by small oblong pale lenticels, dark orange-green and puberulent when they first appear, becoming bright chestnut-brown, lustrous and bright red brown in their second year, and armed with very numerous slender nearly straight purplish shining spines 4.5-6 cm long.

Menands, Golf ground, Charles H. Peck (# 1 gg, type), May and October 1904; July and September 1905.

Anthers pale yellow

Crataegus ambrosia n. sp. Sarg.

Leaves ovate to elliptic or subrhomboidal, short-pointed or acuminate at the apex, rounded or abruptly and gradually concave

cuneate at the entire base, sharply doubly serrate above, with straight glandular teeth, and very slightly divided above the middle into four or five pairs of small acuminate spreading lobes, nearly half grown when the flowers open during the last week of May and then membranaceous, light yellow, very smooth and sparingly villose-pubescent along the midribs above, pale and glabrous below with the exception of occasional short axillary hairs, at maturity thin, glabrous, yellow green, darker on the upper than on the lower surface, 7-9 cm long and 5-6 cm wide, with the slender yellow midribs and thin primary veins extending obliquely to the points of the lobes; petioles slender, wing-margined at the apex, slightly grooved, glabrous, occasionally glandular above the middle, tinged with rose color, 2-3.5 cm in length. Flowers on stout elongated villose pedicels, the lowest peduncles from the axils of the upper leaves, in wide 6 to 12-flowered corymbs, with linear acute glandular rose-colored caducous bracts and bractlets; calyx tube narrowly obconic, sparingly villose at the base, the lobes foliaceous, acuminate, red and glandular at the apex, laciniately toothed, glabrous on the outer and villose on the inner surface, reflexed after anthesis; stamens 20; anthers pale yellow; styles two or three. Fruit ripening late in September or early in October, on long slender drooping pedicels, in usually five or six-fruited clusters, short oblong, full and rounded at the ends, crimson, lustrous, marked by small dark dots, 1-1.4 cm long and 8-12 mm wide; calyx prominent, with a deep narrow cavity, and spreading erect or incurved coarsely serrate lobes, dark red at the base, conspicuously villose on the upper surface and mostly persistent on the ripe fruit; flesh thick, slightly tinged with red, dry and mealy; nutlets usually three, gradually narrowed and rounded at the base, narrowed and rounded or acute at the apex, ridged on the back, with a broad slightly grooved ridge, penetrated on the inner faces by wide shallow grooves, 7-8 mm long and about 5 mm wide.

A shrub 3-4 m high, with erect stems covered with dark brown scaly bark and forming broad thickets, wide-spread ng flexuose branches, and slender nearly straight branchlets marked by oblong pale lenticels, dark orange-green when they first appear, becoming chestnut-brown and very lustrous and dull red brown in their second season, and armed with numerous slender nearly straight purplish shining spines 3-5 cm long.

Menands, Golf ground, Charles H. Peck (# 3 tgn, type), May and October 1904, July and September 1905.

Stamens 10 or less

Anthers rose color

Crataegus rhombifolia Sarg.

Rhodora, v. 183 (1903).

Albia, North Albany, West Albany and Thompson Lake, Charles H. Peck (#80), June and September 1903; May and October 1904; also southern Connecticut to western Vermont.

Anthers white

Crataegus flagrans n. sp. Sarg.

Leaves oblong-ovate to oval, acuminate, gradually or abruptly narrowed and concave cuneate at the entire base, coarsely doubly serrate above, with straight glandular teeth, and slightly divided above the middle into five or six pairs of small acuminate lobes, when they unfold deeply tinged with red and coated with soft white hairs, about half grown when the flowers open from the 10th to the middle of May and then membranaceous, yellow green, lustrous and scabrate above, pale and sparingly villose along the midribs and primary veins below, with short hairs sometimes persistent through the season, at maturity thin, dull green and still slightly roughened on the upper and pale on the lower surface, 6-8 cm long and 4-6 cm wide, with slender yellow midribs, and thin primary veins extending obliquely to the points of the lobes; petioles stout, broadly wing-margined to below the middle, grooved on the upper side, villose-pubescent while young, becoming glabrous, 1-1.5 cm in length; stipules linear, acuminate, glandular, fading rose color, caducous. Flowers about 1.2 cm in diameter, on slender densely villose pedicels, in mostly 15 to 20-flowered hairy cormybs, the lower branches from the axils of upper leaves, with lanceolate to linear obovate glandular rose-colored bracts and bractlets; calyx tube narrowly obconic, coated with long matted pale hairs, the lobes slender, red, and acuminate at the apex, glandular serrate, glabrous on the outer, villose on the inner surface, reflexed after anthesis; stamens 10; anthers white; styles usually three. Fruit ripening early in October, on slender hairy reddish pedicels, in many-fruited drooping clusters, subglobose, dark crimson, lustrous, 8-10 mm in diameter; calyx little enlarged, with a deep narrow cavity, and closely serrate reflexed lobes mostly deciduous from the ripe fruit; flesh thin, orange color, soft and suc-

culent; nutlets three, full and rounded at the base, gradually narrowed at the apex, ridged on the back, with a broad low slightly grooved ridge, irregularly penetrated on the inner faces by wide deep cavities, about 7 mm long and 5 mm wide.

A shrub 4-5 m high, with numerous erect and spreading stems, covered with dark brown scaly bark and forming a broad round topped head, and slender slightly zigzag branchlets marked by small oblong dark lenticels, orange-brown and sparingly villose when they first appear, becoming glabrous and dark red brown by midsummer and bright red brown and lustrous the following season, and armed with slender nearly straight chestnut-brown shining spines 3-4 cm long.

Rich bottom lands of the Hudson river; North Greenbush, Charles H. Peck (#68 ng, type), May, June and October 1904; Peck and Sargent, August 17, 1905.

Crataegus flagrans is interesting as the first species of the subgroup of the Tomentosae, with thin leaves glabrous or almost glabrous at maturity, that has been noticed with 10 stamens and white or yellow anthers.

Mature leaves coriaceous to subcoriaceous

Stamens 20

Anthers rose color

Crataegus succulenta Link

Handbk. ii. 78 (1831).—Sargent, Silva N. Am. xiii. 139, t. 101; Man. 497, f. 411.

North Albany, Charles H. Peck (# 12), May and September 1904; Albia, Charles H. Peck (# 1), May and June 1904, June 1905.

Crataegus gemmosa Sarg.

Bot. Gazette, xxxiii. 119 (1902); Silva N. Am. xiii. 141, t. 686; Man. 498, f. 412.

North Albany, near the tollgate, Troy road, Peck and Sargent (# 3 tg) October 1902; Charles H. Peck, May and October 1904; also western New York, Ohio, Ontario and Michigan.

The anthers of the Albany plant as described by Professor Peck are paler than those of the type trees which are at Grand Rapids, Mich. and the fruits, which were the largest and most beautiful I have seen on any plants of this group, were on October 2, 1902,

about 1.5 cm in diameter. In later seasons, however, Professor Peck has found them somewhat smaller, and, except in the color of the anthers and in the size of the fruit and its larger calyx lobes, I can find nothing by which to distinguish the Albany plant from Crataegus gemmosa.

Anthers pale yellow

Crataegus halliana n. sp. Sarg.

Leaves oblong-obovate to oval, acute or acuminate, gradually narrowed and concave cuneate at the slender entire base, finely doubly serrate above, with minute glandular teeth, and very slightly divided above the middle into small acute lobes, about half grown when the flowers open the 1st of June and then thin, yellow green, scabrate and slightly hairy above along the midribs and pale and sparingly villose, with short persistent hairs below along the midribs and veins, at maturity subcoriaceous, conspicuously reticulate-venulose, dark green, smooth and lustrous on the upper and pale on the lower surface, 5-6 cm long, 3.5-4 cm wide, with thin yellow midribs and veins deeply impressed on the upper side; petioles slender, narrowly wing-margined to below the middle, grooved and villose while young along the upper side, soon glabrous, tinged with red in the autumn, 1.5-2 cm in length; leaves on vigorous shoots sometimes more deeply lobed, 6-7 cm long and 4-5 cm wide, with stout broadly winged petioles and slender falcate acuminate rose-colored caducous stipules. Flowers 1.2-1.3 cm in diameter, on long slender villose pedicels, in broad 8 to 16-flowered crowded corymbs, with long several-flowered peduncles from the axils of the two upper leaves; calyx tube narrowly obconic, villose at the base, glabrous above, the lobes slender, acuminate, laciniately glandular-serrate, glabrous on the outer, villose on the inner surface, reflexed after anthesis; stamens 20; filaments short; anthers pale yellow; styles two or three. Fruit very abundant, ripening early in October, on long drooping reddish pedicels, in wide many-fruited corymbs, subglobose, crimson, lustrous, marked by large dark dots, 1-1.2 cm in diameter; calyx little enlarged, with a deep narrow cavity, and spreading closely appressed glandular-serrate lobes coated on the upper side with matted pale hairs; flesh thick, tinged with red, soft and very succulent; nutlets two or three, gradually narrowed and rounded at the ends, ridged on the back, with a broad grooved ridge, penetrated on the inner faces by large deep cavities, about 7 mm long and 4 mm wide.

A shrub 2-5 m high, with numerous widespreading or ascending stems covered with dark brown scaly bark, and slender nearly straight branchlets marked by small oblong pale lenticels, light orange-green and glabrous when they first appear, light chestnut-brown and very lustrous at the end of their first season, darker the following year, and armed with few slender more or less curved bright chestnut-brown shining spines 2.5-5 cm long and often pointing toward the base of the branch.

North Albany, Charles H. Peck (# 3 na, type), June and October 1904, June 1905. Menands, Golf ground (# 3 gg, with leaves sometimes narrow-rhomboidal), May, June and September 1905.

This species is named in memory of James Hall (1811–1898), the distinguished geologist and paleontologist, long a professor in the Rensselaer Polytechnic Institute of Troy and one of the authors of the *Catalogue of Plants in the vicinity of Troy*, published in 1837.

Stamens 10-20

Anthers pink

Crataegus conspicua n. sp. Sarg.

Leaves oblong-obovate, rounded, acute or acuminate at the apex, gradually narrowed to the concave cuneate entire base, coarsely doubly serrate above, with straight glandular teeth, and slightly divided toward the apex into three or four pairs of short acute lobes, nearly one third grown when the flowers open about the 20th of May and then membranaceous, dark yellow green and glabrous above with the exception of a few short pale hairs along the midribs and veins, and covered below with pale tomentum most developed on the midribs and veins, at maturity coriaceous, dark green and glabrous on the upper and pale and tomentose on the lower surface, 7-9 cm long and 5-7 cm wide, with stout midribs deeply impressed on the upper side of the leaf and rose-colored below toward the base, and slender primary veins extending obliquely to the points of the lobes; petioles stout, wing-margined to below the middle, deeply grooved, slightly villose along the upper side while young, becoming glabrous and often rose-colored or purple below the middle, 2-3 cm in length; leaves on vigorous shoots oval to obovate, more coarsely serrate, 7-8 cm long and 5-6 cm wide. Flowers 1.2-1.3 cm in diameter, on slender densely hoary tomentose pedicels, in broad many-flowered tomentose corymbs,

with large acuminate glandular rose-colored conspicuous bracts and bractlets deciduous before the flowers open; calyx tube narrowly obconic, coated with long matted pale hairs, the lobes long, slender, acuminate, coarsely glandular serrate usually only above the middle, puberulent on the outer and covered with matted hairs on the inner surface; stamens 10-20; anthers small, light pink; styles two to four. Fruit ripening the first of October, on slender drooping pedicels, in few-fruited clusters, subglobose to short oblong, full and rounded at the ends, crimson, lustrous, 8-10 mm in diameter; calyx conspicuous, with a narrow deep cavity and foliaceous spreading or reflexed coarsely glandular serrate lobes; flesh thick, orange color, sweet and succulent; nutlets two to four, full and rounded at the ends, ridged on the back, with a high narrow often irregular slightly grooved ridge, deeply penetrated on the inner faces by broad deep cavities, about 7 mm long and 4 mm wide.

A broad shrub 3-4 m high, with numerous erect stems and stout branchlets, light orange-green and glabrous when they first appear, bright chestnut-brown and very lustrous during their first winter, and dull dark reddish brown the following year, and armed with many stout nearly straight purplish shining spines 3-3.5 cm in length.

Near the tollgate on the Troy road, North Albany, Peck and Sargent (# 1, type), October 2, 1902; Charles H. Peck, May and October 1903; also near pulp mill station, New Haven, Addison co. Vt. Brainerd and Sargent (# 15 A), September 1900; Ezra Brainerd, October 1900 and May and September 1901.

In the Vermont plant the calyx lobes, specially before anthesis, are rather longer, the flowers are somewhat larger, and the leaves are broader in proportion to their length than those of the Albany plant, but the two appear to belong to one species peculiar in the tomentose covering of the entire lower surface of the leaves.

Stamens 10 or less

Anthers rose color

Crataegus beckiana n. sp. Sarg.

Leaves broadly ovate to obovate, acute and often short-pointed at the apex, concave cuneate at the entire base, finely doubly serrate above, with straight gland-tipped teeth, and slightly divided above the middle into four or five pairs of short acuminate lobes, about

half grown when the flowers open during the last week of May and then membranaceous, light yellow green, smooth and glabrous on the upper surface with the exception of a few short hairs along the midribs and pale and glabrous on the lower surface, at maturity subcoriaceous, dark green and very smooth above, pale below, conspicuously reticulate-venulose, 6-7 cm long and 5-6 cm wide, with slender midribs and primary veins deeply impressed on the upper side of the leaf; petioles stout, wing-margined at the apex, deeply grooved, villose on the upper side while young, becoming glabrous, 1.5-2 cm in length. Flowers 1.2-1.4 cm in diameter, on slender slightly villose pedicels, in wide many-flowered corymbs; calyx tube narrowly obconic, glabrous, the lobes slender, acuminate, glandular-serrate below the middle, glabrous on the outer, villose on the inner surface, reflexed after anthesis; stamens 10; anthers dark rose color; styles two or three. Fruit ripening early in September, in many-fruited drooping clusters, subglobose to obovate, full and rounded at the ends, crimson, lustrous, marked by numerous small pale dots; calyx enlarged and prominent, with a deep narrow cavity and foliaceous coarsely serrate reflexed and appressed lobes, dark red and villose on the upper side and mostly persistent on the ripe fruit; flesh thin, dry and yellow; nutlets usually two, rounded and obtuse at the ends, irregularly ridged on the broad back, deeply penetrated on the inner face by broad irregular cavities, 6-7 mm long and about 5 mm wide.

A tree or treelike shrub 6-7 m high, with a trunk sometimes 15-18 cm in diameter covered with dark gray scaly bark, large spreading and ascending ashy gray branches forming a round-topped symmetrical head, and stout branchlets marked by oblong pale lenticels, light orange-green and glabrous when they first appear, becoming bright chestnut-brown and very lustrous during their first winter and ultimately dull gray brown, and armed with numerous stout nearly straight purplish shining spines 2.5-4 cm long.

Rich bottom lands of the Hudson river; North Greenbush, Charles H. Peck (# 60, type), May and September 1903.

This species is named in honor of Louis C. Beck (1798-1853), a native of Schenectady, Professor of chemistry in the Medical College at Albany, and author of the *Botany of the Northern and Middle States*, published in 1833, and of numerous papers on botany and chemistry.

Anthers white

Crataegus ferentaria Sarg.

Proc. Rochester Acad. Sci. iv. 135 (1903).

North Albany, Albia, Charles H. Peck (# 19 n), May and August 1904; also southern New England, western New York and Ontario.

Crataegus hystricina Ashe

Bot. Gazette, xxxv. 433 (1903).

Thompson Lake, Charles H. Peck (# 81), June and September 1904; also at Stratford, Connecticut.

EXPLANATION OF PLATES

PLATE S[illegible]

Marasmius longistriatus Pk.

Long Striated Marasmius

1, 2 Two moist plants, the larger showing gills beneath the pileus
3, 4 Three plants with dry caps, showing the long striations

Clitopilus squamulosus Pk.

Squamulose Clitopilus

5 Mature plant
6 Vertical section of the upper part of a mature plant
7 Transverse section of a stem
8 Four spores, x 400

Entoloma flavifolium Pk.

Yellow Gilled Entoloma

9 Young plant showing pale yellow gills
10 Immature plant after the gills have begun to change color
11 Mature plant
12 Vertical section of the upper part of a young plant
13 Vertical section of the upper part of a mature plant
14 Transverse section of a stem
15 Four spores, x 400

FIG. 1-4
ARASMIUS LONGISTRIATUS PK.
LONG STRIATED MARASMIUS

FIG. 5-8
CLITOPILUS SQUAMULOSUS PK.
SQUAMULOSE CLITOPILUS

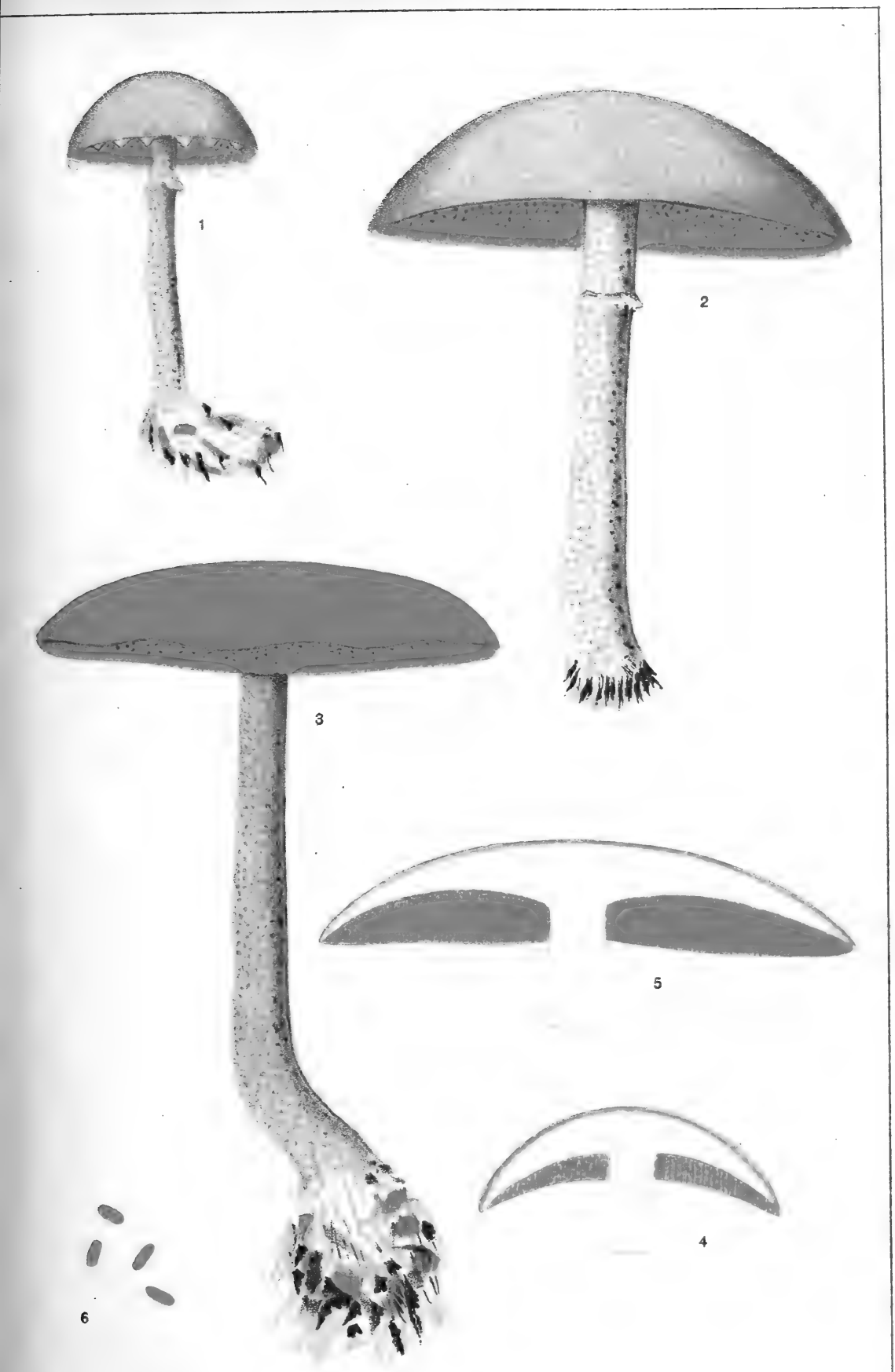
FIG. 9-15 ENTOLOMA FLAVIFOLIUM PK.
YELLOW GILLED ENTOLOMA

PLATE T

Boletus acidus Pk.

ACID BOLETUS

1 Young plant showing the appendiculate margin of the cap
2 Immature plant showing a collar on the stem
3 Mature plant
4 Vertical section of the upper part of a young plant
5 Vertical section of the upper part of a mature plant
6 Four spores, x 400



BOLETUS ACIDUS Pk.
ACID BOLETUS

PLATE 94

Tricholoma unifactum Pk.

United Tricholoma

1 Cluster of plants united by a common fleshy base
2, 3 Two plants separated from the fleshy base
4 Vertical section of the upper part of a plant
5 Four spores, x 400

TRICHOLOMA UNIFACTUM Pk.
UNITED TRICHOLOMA

PLATE 95

Lactarius rimosellus Pk.

CRACKED LACTARIUS

1 Young plant showing central papilla of the cap
2 Young plant showing drop of milk from wound of gills
3 Mature plant
4 Vertical section of upper part of a mature plant
5 Transverse section of a stem
6 Four spores, x 400

Lactarius serifluus (DC.) Fr.

THIN JUICED LACTARIUS

7 Young plant showing whitish gills
8, 9 Two mature plants, one with cap centrally depressed
10 Vertical section of the upper part of a plant
11 Four spores, x 400

FIG. 1-6 LACTARIUS RIMOSELLUS PK. FIG. 7-11 LACTARIUS SERIFLUUS FR.
CRACKED LACTARIUS THIN JUICED LACTARIUS

PLATE 96

Russula albida Pk.

WHITISH RUSSULA

1 Young plant
2, 3 Mature plants, one showing center of cap tinged with yellow
4 Mature plant with margin of cap slightly curved upward
5 Vertical section of the upper part of a plant
6 Transverse section of a stem
7 Four spores, x 400

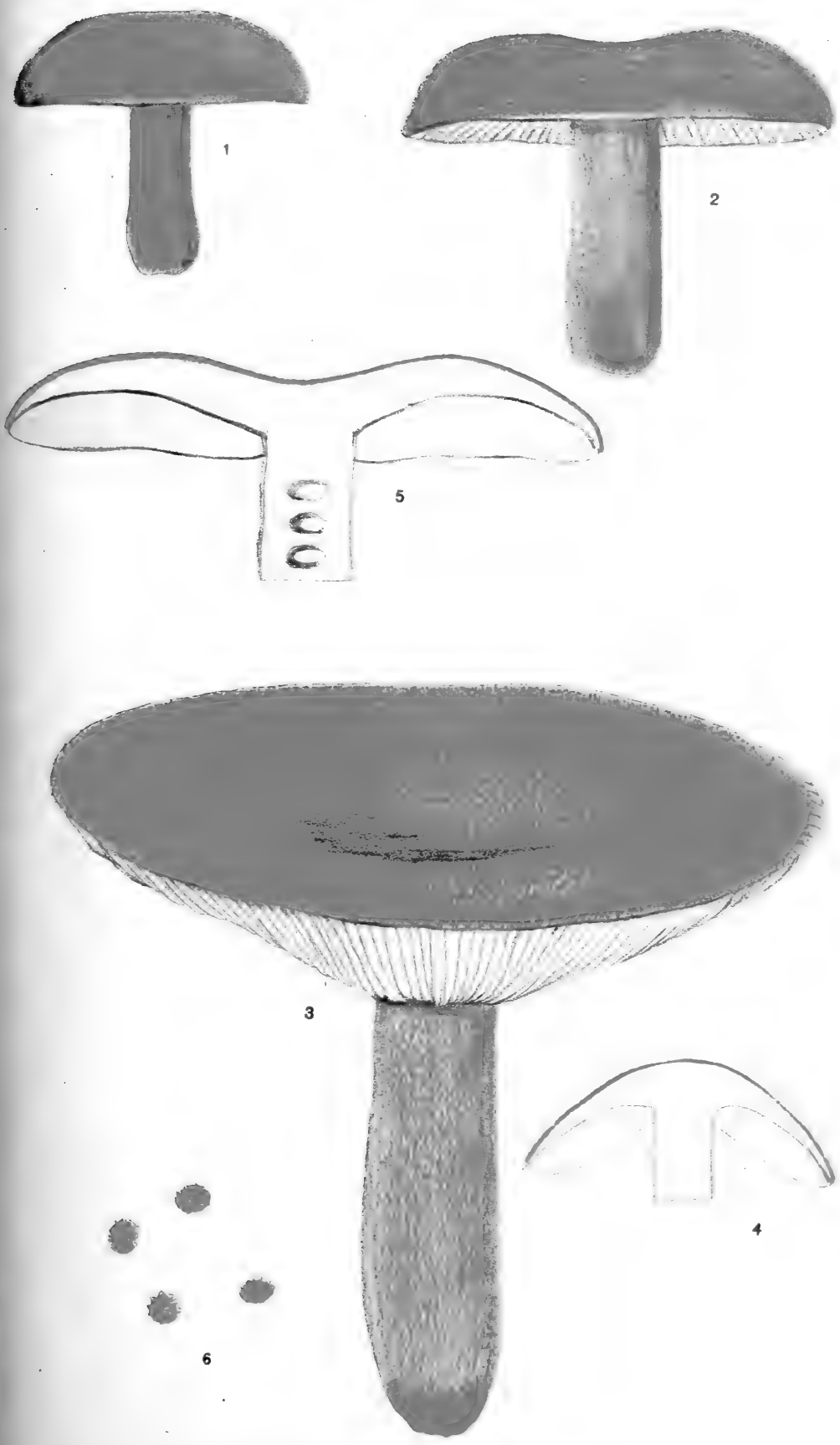
RUSSULA ALBIDA Pk.
WHITISH RUSSULA

PLATE 97

Russula flavida Frost

YELLOWISH RUSSULA

1 Young plant
2 Mature plant with convex cap
3 Mature plant with expanded cap centrally depressed
4 Vertical section of the upper part of a young plant
5 Vertical section of the upper part of a mature plant
6 Four spores, x 400



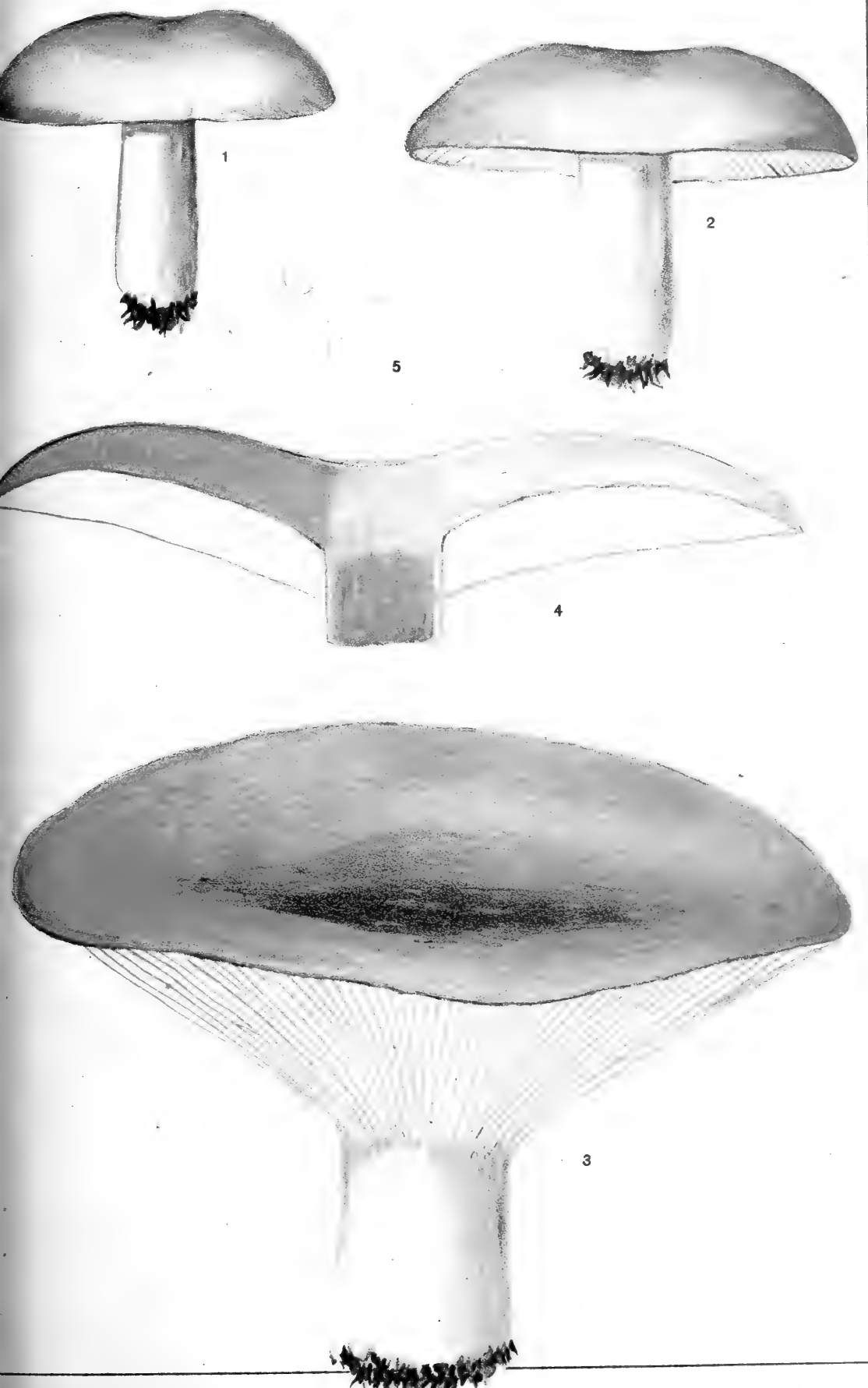
RUSSULA FLAVIDA FROST
YELLOWISH RUSSULA

PLATE 98

Russula sordida Pk.

SORDID RUSSULA

1 Young plant showing whitish cap
2 Immature plant with cap discolored
3 Mature plant with expanded cap centrally depressed
4 Vertical section of the upper part of a plant showing the pale color of the flesh when first cut in one part and the dark color soon assumed in another part
5 Four spores, x 400



RUSSULA SORDIDA Pk.
SORDID RUSSULA

PLATE 99

Russula subsordida Pk.

SUBSORDID RUSSULA

1 Young plant with whitish cap
2 Immature plant with cap discolored
3 Mature plant with expanded cap centrally depressed
4 Vertical section of the upper part of a plant showing the pale color of the flesh when first cut at the right and the dark color soon assumed at the left
5 Four spores, x 400

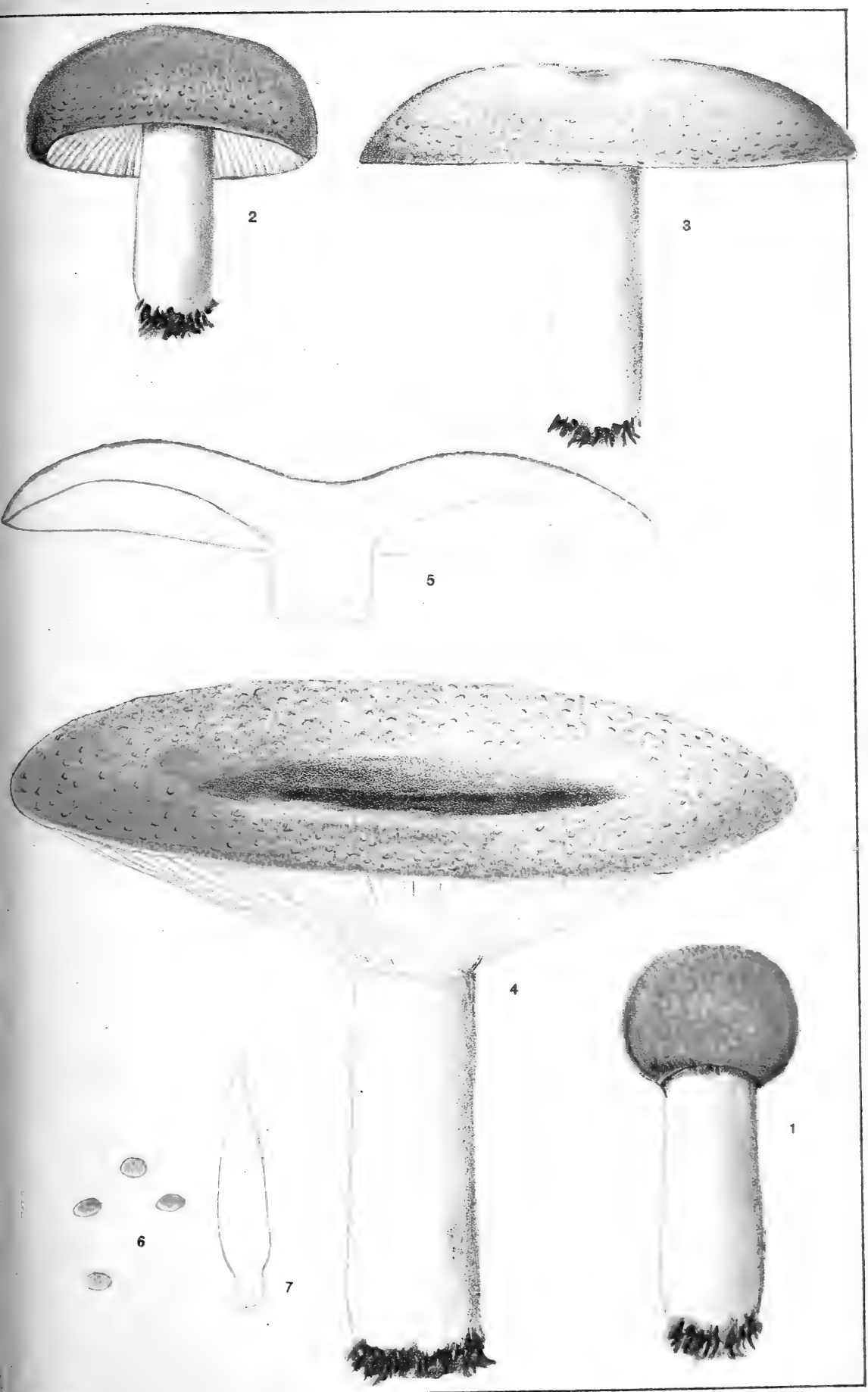
RUSSULA SUBSORDIDA Pk.
SUBSORDID RUSSULA

PLATE 100

Russula viridella Pk.

PALE GREEN RUSSULA

1 Very young plant with cap still closed
2, 3 Immature plants, one at the left showing the white gills
4 Mature plant
5 Vertical section of the upper part of a mature plant
6 Four spores, x 400
7 Cystidium, x 400



RUSSULA VIRIDELLA Pk.

PALE GREEN RUSSULA

PLATE IOI

Russula variata Banning

VARIABLE RUSSULA

1 Young plant showing a green cap with purplish center
2 Mature plant with convex purplish cap
3 Mature plant with expanded green cap centrally depressed
4 Vertical section of the upper part of a mature plant
5 Four spores, x 400

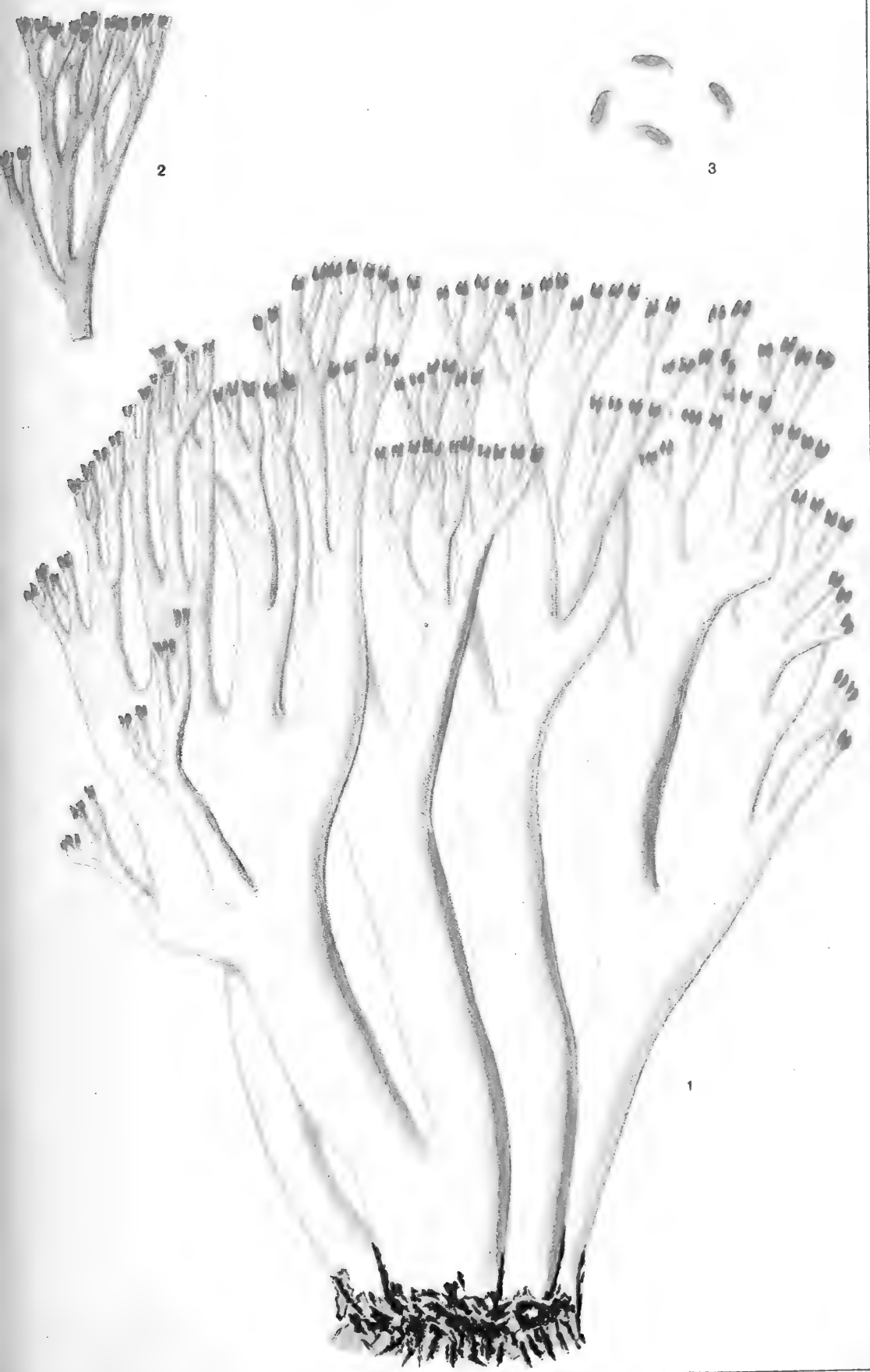
RUSSULA VARIATA BANNING
VARIABLE RUSSULA

PLATE 102

Clavaria conjuncta Pk.

CONJOINED CLAVARIA

1 Cluster of plants united at the base
2 Upper part of a branch
3 Four spores, x 400



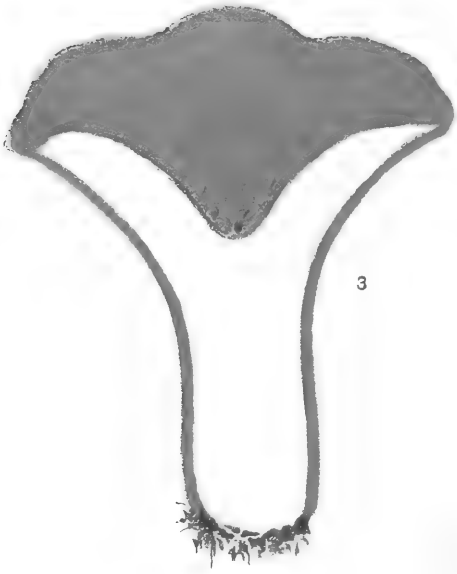
CLAVARIA CONJUNCTA Pk.
CONJOINED CLAVARIA

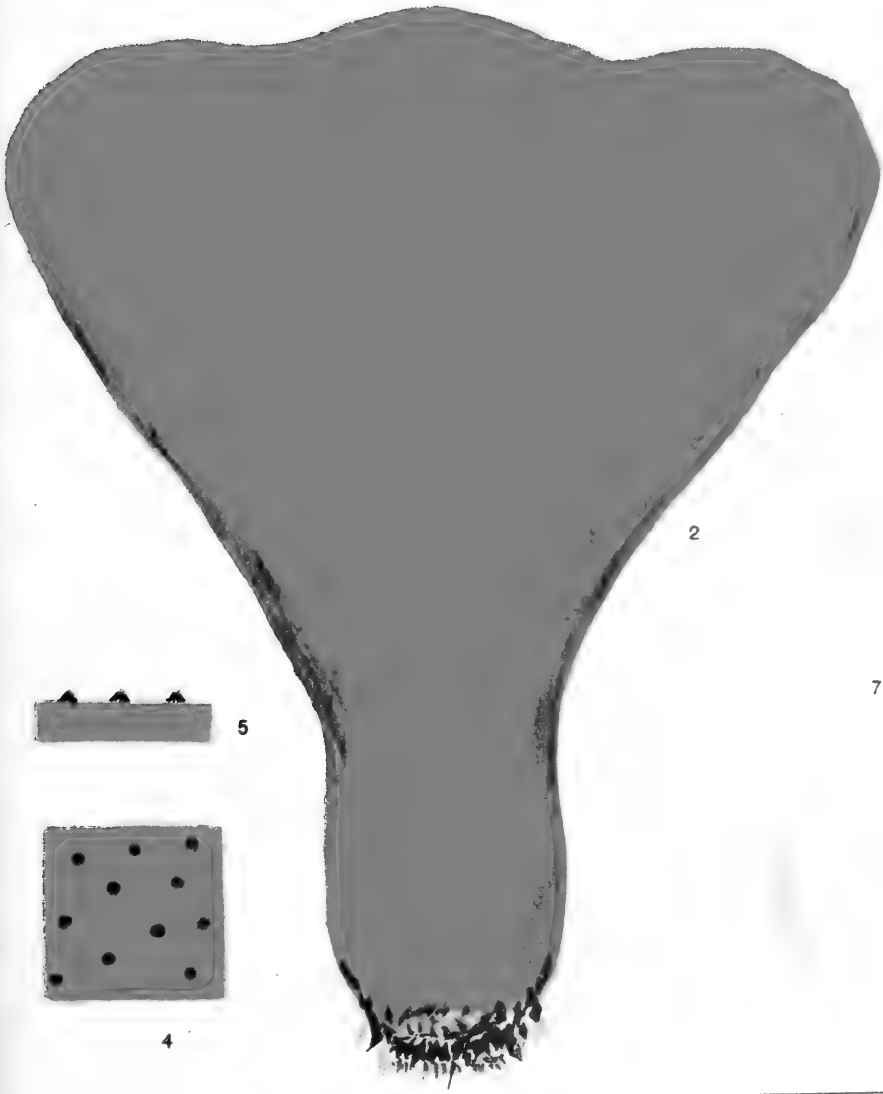
PLATE 103

Hypomyces lactifluorum (Schw.) Tul.

RED HYPOMYCES

1 Small host plant discolored by the parasite
2 Large host plant discolored by the parasite
3 Vertical section of a small discolored host plant
4 Birdseye view of a small piece of the hypomyces enlarged to show the blackish mouths of the perithecia or spore vessels
5 Side view of a small piece of the hypomyces enlarged and showing three perithecia sunk in the red subiculum
6 A linear ascus or spore sac containing eight spores, x 400
7 Four spores, x 400





HYPOMYCES LACTIFLUORUM (Schw.) Fr.
RED HYPOMYCES

INDEX

New York State Education Department

New York State Museum

JOHN M. CLARKE Director

PUBLICATIONS

Packages will be sent prepaid except when distance or weight renders the same impracticable. On 10 or more copies of any one publication 20% discount will be given. Editions printed are only large enough to meet special claims and probable sales. When the sale copies are exhausted, the price for the few reserve copies is advanced to that charged by second-hand booksellers, in order to limit their distribution to cases of special need. Such prices are inclosed in [ ]. All publications are in paper covers, unless binding is specified.

Museum annual reports 1847–date. *All in print to 1892, 50c a volume, 75c in cloth; 1892–date, 75c, cloth.*

These reports are made up of the reports of the Director, Geologist, Paleontologist, Botanist and Entomologist, and museum bulletins and memoirs, issued as advance sections of the reports.

Director's annual reports 1904–date.

These reports cover the reports of the State Geologist and of the State Paleontologist. Bound also with the museum reports of which they form a part.

Report for 1904. 138p. *20c.* Report for 1905. 102p. 23pl. *30c.*

Geologist's annual reports 1881–date. Rep'ts 1, 3–13, 17–date, O; 2, 14–16, Q.

In 1898 the paleontologic work of the State was made distinct from the geologic and was reported separately from 1890–1903. The two departments were reunited in 1904, and are now reported in the Director's report.

The annual reports of the original Natural History Survey, 1837–41, are out of print.

Reports 1–4, 1881–84, were published only in separate form. Of the 5th report 4 pages were reprinted in the 39th museum report, and a supplement to the 6th report was included in the 40th museum report. The 7th and subsequent reports are included in the 41st and following museum reports, except that certain lithographic plates in the 11th report (1891) and 13th (1893) are omitted from the 45th and 47th museum reports.

Separate volumes of the following only are available.

Report	*Price*	*Report*	*Price*	*Report*	*Price*
12 (1892)	$.50	17	$.75	21	$.40
14	.75	18	.75	22	.40
15, 2v.	2	19	.40	23	.45
16	1	20	.50	[*See* Director's annual reports]	

Paleontologist's annual reports 1899–date.

See first note under Geologist's annual reports.

Bound also with museum reports of which they form a part. Reports for 1899 and 1900 may be had for 20c each. Those for 1901–3 were issued as bulletins. In 1904 combined with the Director's report.

Entomologist's annual reports on the injurious and other insects of the State of New York 1882–date.

Reports 3–20 bound also with museum reports 40–46, 48–58 of which they form a part. Since 1898 these reports have been issued as bulletins. Reports 3–4, 17 are out of print, other reports with prices are:

Report	*Price*	*Report*	*Price*	*Report*	*Price*
1	$.50	9	$.25	15 (En 9)	$.15
2	.30	10	.35	16 (" 10)	.25
5	.25	11	.25	17 (" 14)	.30
6	.15	12	.25	18 (" 17)	.20
7	.20	13	.10	19 (" 21)	.15
8	.25	14 (En 5)	.20	20 (" 24)	.40
				21 *In press*	

Reports 2, 8–12 may also be obtained bound separately in cloth at 25c in addition to the price given above.

Botanist's annual reports 1867–date.

Bound also with museum reports 21–date of which they form a part; the first Botanist's report appeared in the 21st museum report and is numbered 21. Reports 21–24, 29, 31–41 were not published separately.

Separate reports for 1871–74, 1876, 1888–96 and 1898 (Botany 3) are out of print. Report for 1897 may be had for 40c; 1899 for 20c; 1900 for 50c. Since 1901 these reports have been issued as bulletins [*see* Bo 5–9].

Descriptions and illustrations of edible, poisonous and unwholesome fungi of New York have also been published in volumes 1 and 3 of the 48th (1894) museum report and in volume 1 of the 49th (1895), 51st (1897), 52d (1898), 54th (1900), 55th (1901), 56th (1902), 57th (1903) and 58th (1904) reports. The descriptions and illustrations of edible and unwholesome species contained in the 49th, 51st and 52d reports have been revised and rearranged, and, combined with others more recently prepared, constitute Museum memoir 4.

Museum bulletins 1887–date. O. *To advance subscribers, $2 a year or $1 a year for division* (1) *geology, economic geology, paleontology, mineralogy; 50c each for divisions* (2) *general zoology, archeology and miscellaneous,* (3) *botany,* (4) *entomology.*

Bulletins are also found with the annual reports of the museum as follows:

Bulletin	*Report*	*Bulletin*	*Report*	*Bulletin*	*Report*	*Bulletin*	*Report*
G 1	48, v.1	Pa 2, 3	54, v.3	En 11	54, v.3	Ar 3	52, v.1
2	51, v.1	4	" v.4	12, 13	" v.4	4	54, v.1
3	52, v.1	5, 6	55, v.1	14	55, v.1	5	" v.3
4	54, v.4	7–9	56, v.2	15–18	56, v.3	6	55, v.1
5	56, v.1	10	57, v.1	19	57, v.1, pt 2	7	56, v.4
6	57, v.1	Z 3	53, v.1	20	" v.1 "	8	57, v.2
Eg 5, 6	48, v.1	4	54, v.1	21	" v.1 "	9	" v.2
7	50, v.1	5–7	" v.3	22	" v.1 "	Ms 1, 2	56, v.4
8	53, v.1	8	55, v.1	Bo 3	52, v.1		
9	54, v.2	9	56, v.3	4	53, v.1	*Memoir*	
10	" v.3	10	57, v.1	5	55, v.1	2	49, v.3
11	56, v.1	En 3	48, v.1	6	56, v.4	3, 4	53, v.2
M 2	" v.1	4–6	52, v.1	7	57, v.2	5, 6	57, v.3
3	57, v.1	7–9	53, v.1	Ar 1	50, v.1	7	" v.4
Pa 1	54, v.1	10	54, v.2	2	51, v.1		

The figures in parenthesis in the following list indicate the bulletin's number as a New York State Museum bulletin.

Geology. **G1** (14) Kemp, J. F. Geology of Moriah and Westport Townships, Essex Co. N. Y., with notes on the iron mines. 38p. 7pl. 2 maps. Sep. 1895. *10c.*

G2 (19) Merrill, F. J. H. Guide to the Study of the Geological Collections of the New York State Museum. 162p. 119pl. map. Nov. 1898. [*50c*]

G3 (21) Kemp, J. F. Geology of the Lake Placid Region. 24p. 1pl. map. Sep. 1898. *5c.*

G4 (48) Woodworth, J. B. Pleistocene Geology of Nassau County and Borough of Queens. 58p. il. 9pl. map. Dec. 1901. *25c.*

G5 (56) Merrill, F. J. H. Description of the State Geologic Map of 1901. 42p. 2 maps, tab. Oct. 1902. *10c.*

G6 (77) Cushing, H. P. Geology of the Vicinity of Little Falls, Herkimer Co. 98p. il. 15pl. 2 maps. Jan. 1905. *30c.*

G7 (83) Woodworth, J. B. Pleistocene Geology of the Mooers Quadrangle. 62p. 25pl. map. June 1905. *25c.*

G8 (84) —— Ancient Water Levels of the Champlain and Hudson Valleys. 206p. 11pl. 18 maps. July 1905. *45c.*

G9 (95) Cushing, H. P. Geology of the Northern Adirondack Region. 188p. 15pl. 3 maps. Sep. 1905. *30c.*

G10 (96) Ogilvie, I. H. Geology of the Paradox Lake Quadrangle. 54p. il. 17pl. map. Dec. 1905. *30c.*

Woodworth, J. B.; Hartnagel, C. A. & Whitlock, H. P. Miscellaneous Papers. *In press.*

Contents: Woodworth, J. B. Postglacial Faults of Eastern New York.
Hartnagel, C. A. Stratigraphic Relations of the Oneida Conglomerate.
——The Upper Siluric and Lower Devonic Formations of the Skunnemunk Mountain Region.
Whitlock, H. P. Minerals from Lyon Mountain, Clinton Co.

Fairchild, H. L. Glacial Waters in the Erie Basin. *In press.*

—— Drumlins of New York. *In preparation.*

Cushing, H. P. Geology of the Theresa Quadrangle. *In preparation.*

—— Geology of the Long Lake Quadrangle. *In preparation.*

Berkey, C. P. Geology of the Highlands of the Hudson. *In preparation.*

Economic geology. **Eg1** (3) Smock, J. C. Building Stone in the State of New York. 152p. Mar. 1888. *Out of print.*

Eg2 (7) —— First Report on the Iron Mines and Iron Ore Districts in the State of New York. 6+70p. map. June 1889. *Out of print.*

Eg3 (10) —— Building Stone in New York. 210p. map, tab. Sep. 1890. *40c.*

Eg4 (11) Merrill, F. J. H. Salt and Gypsum Industries of New York. 92p. 12pl. 2 maps, 11 tab. Ap. 1893. [*50c*]

Eg5 (12) Ries, Heinrich. Clay Industries of New York. 174p. 2pl. map. Mar. 1895. *30c.*

Eg6 (15) Merrill, F. J. H. Mineral Resources of New York. 224p. 2 maps. Sep. 1895. [*50c*]

Eg7 (17) —— Road Materials and Road Building in New York. 52p. 14pl. 2 maps 34x45, 68x92 cm. Oct. 1897. *15c.*

Eg8 (30) Orton, Edward. Petroleum and Natural Gas in New York. 136p. il. 3 maps. Nov. 1899. *15c.*

Eg9 (35) Ries, Heinrich. Clays of New York; their Properties and Uses. 456p. 140pl. map. June 1900. *$1, cloth.*

Eg10 (44) —— Lime and Cement Industries of New York; Eckel, E. C. Chapters on the Cement Industry. 332p. 101pl. 2 maps. Dec. 1901. *85c, cloth.*

Eg11 (61) Dickinson, H. T. Quarries of Bluestone and other Sandstones in New York. 108p. 18pl. 2 maps. Mar. 1903. *35c.*

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Eg15 (102) Newland, D. H. Mining and Quarry Industry of New York. 2d Report. 162p. June 1906. *25c.*

Newland, D. H. & Hartnagel, C. A. The Sandstones of New York. *In preparation.*

Mineralogy. M1 (4) Nason, F. L. Some New York Minerals and their Localities. 20p. 1pl. Aug. 1888. [*10c*]

M2 (58) Whitlock, H. P. Guide to the Mineralogic Collections of the New York State Museum. 150p. il. 39pl. 11 models. Sep. 1902. *40c.*

M3 (70) —— New York Mineral Localities. 110p. Sep. 1903. *20c.*

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——The Water Biscuit of Squaw Island, Canandaigua Lake, N. Y.
Simpson, G. B. Preliminary Descriptions of New Genera of Paleozoic Rugose Corals.
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—— Civil, Religious and Mourning Councils and Ceremonies of Adoption. *In press.*

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Ms2 (66) Ellis, Mary. Index to Publications of the New York State Natural History Survey and New York State Museum 1837–1902. 418p. June 1903. *75c, cloth.*

Museum memoirs 1889–date. Q.

1 Beecher, C. E. & Clarke, J. M. Development of Some Silurian Brachiopoda. 96p. 8pl. Oct. 1889. *$1.*

2 Hall, James & Clarke, J. M. Paleozoic Reticulate Sponges. 350p. il. 70pl. 1898. *$1, cloth.*

3 Clarke, J. M. The Oriskany Fauna of Becraft Mountain, Columbia Co. N. Y. 128p. 9pl. Oct. 1900. *80c.*

4 Peck, C. H. N. Y. Edible Fungi, 1895–99. 106p. 25pl. Nov. 1900. *75c.*
This includes revised descriptions and illustrations of fungi reported in the 49th, 51st and 52d reports of the State Botanist.

5 Clarke, J. M. & Ruedemann, Rudolf. Guelph Formation and Fauna of New York State. 196p. 21pl. July 1903. *$1.50, cloth.*

6 Clarke, J. M. Naples Fauna in Western New York. 268p. 26pl. map. *$2, cloth.*

7 Ruedemann, Rudolf. Graptolites of New York. Pt 1 Graptolites of the Lower Beds. 350p. 17pl. Feb. 1905. *$1.50, cloth.*

8 Felt, E. P. Insects Affecting Park and Woodland Trees. v.1 460p. il. 48pl. Feb. 1906. *$2.50, cloth.* v.2 *In press.*

9 Clarke, J. M. Early Devonic of New York and Eastern North America. *In press.*

Eaton, E. H. Birds of New York. *In preparation.*

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v. 2 Organic Remains of Lower Middle Division of the New York System. 8+362p. 104pl. 1852. *Out of print.*

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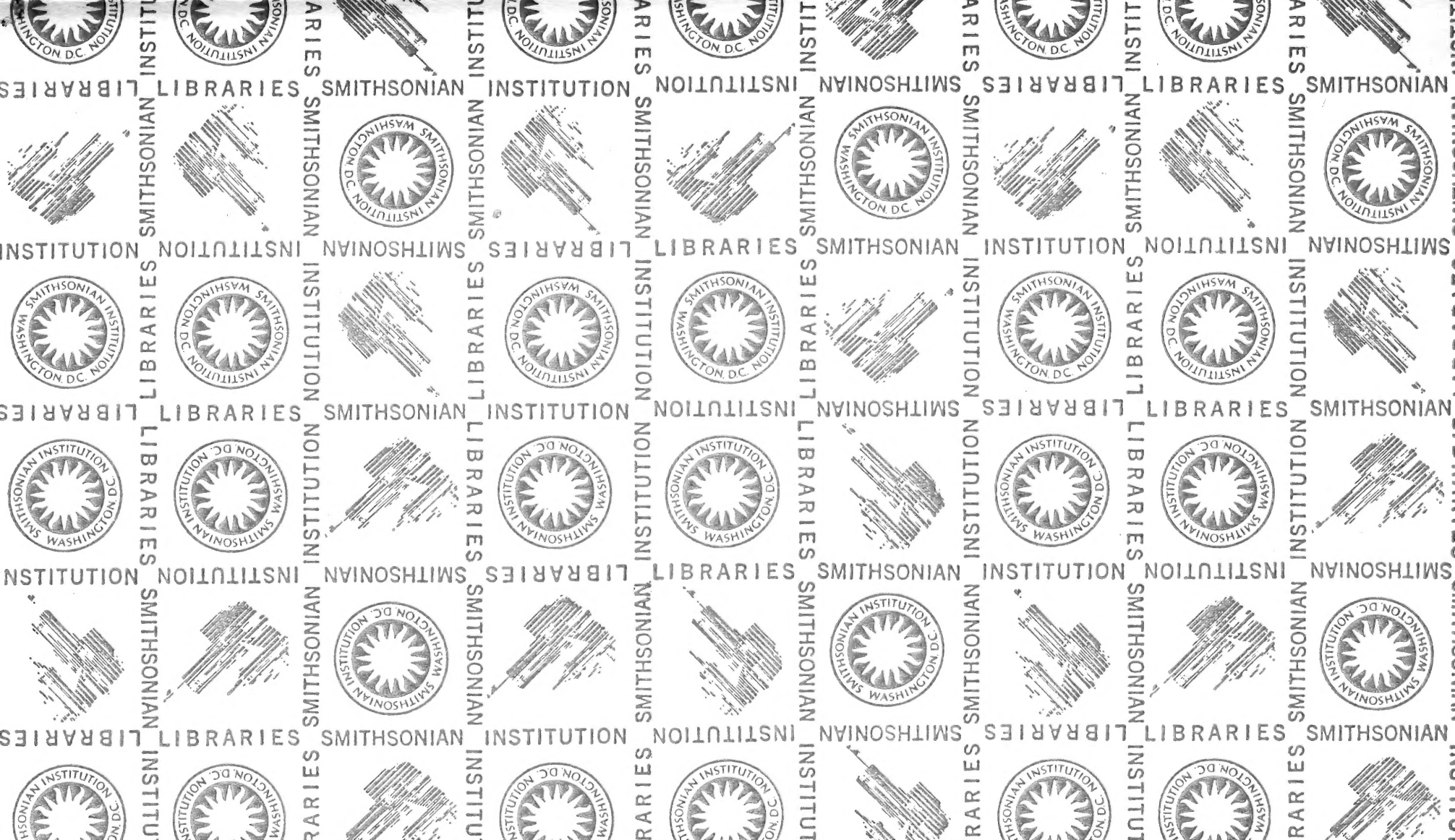
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